

TOXNET

Toxicology and Environmental Health Information

from the National Library of Medicine (NLM)

and Other Sites

February 2007



Presented by

NLM's Toxicology and Environmental Health Information Program

part of the Division of Specialized Information Services

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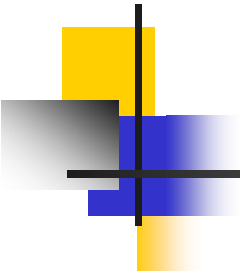
Web site: <http://sis.nlm.nih.gov/>

Contact: tehip@teh.nlm.nih.gov



Class Schedule

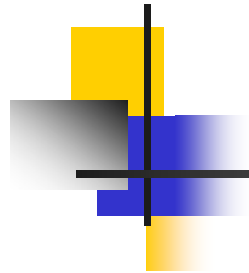
Part I	Introduction	9:00 - 9:15
Part II	ChemIDplus	9:15 - 9:45
	Exercises (II)	9:45 -10:15
	Break	10:15 -10:30
Part III	TOXNET Overview, HSDB & Related Files	10:30 -11:30
	Exercises (III)	11:30 -12:00
	Lunch	12:00 - 1:00
Part IV	TOXLINE and Other Bibliographic Files	1:00 - 1:30
Part V	TRI, Specialty Files, New Initiatives	1:30 - 2:15
	Exercises (IV, V)	2:15 - 2:45
	Break	2:45 - 3:00
Part VI	Non-NLM Resources	3:00 - 3:30
	Exercises (VI)	3:30 - 4:00



Class Roster

Name

Organization



Part I

Introduction



Toxicology and Environmental Health Information Program (TEHIP)

Background

- Poisons recognized throughout time.
- Socrates - hemlock. Cleopatra - asp.
- Lucretia Borgia
- Harvey W. Wiley's Poison Squad – 1903
- The Jungle (1906) Upton Sinclair – lack of hygiene in the meat-packing industry
- Food and Drugs Act (1906) – prohibited adulterated or misbranded items
- Federal Food, Drug and Cosmetic Act (1938) – enhanced safety requirements for drugs
- Drug Amendments (1962) – effectiveness required for drugs
- Silent Spring (1962) Rachel Carson – sparked public awareness about hazards of synthetic chemicals
- President's Science Advisory Committee (1966) – “Report on the Handling of Toxicological Information”
- TEHIP Created (1967)
- Situated within NLM's Division of Specialized Information Services



TEHIP Mission

- Provide selected core toxicology and environmental health information resources and services
- Facilitate access to national and international toxicology and environmental health information resources
- Strengthen the information infrastructure of toxicology and environmental health

So...TEHIP

- Builds and/or makes available free online Web-based databases
- Creates other Web-based resources
- Collaborates with government agencies and others
- Addresses a spectrum of user needs, from the personal to the professional
- Is active in public training and outreach



TEHIP Databases

- TOXNET System of Databases (including ChemIDplus and Specialty Databases)
- DIRLINE (directory of organizations)

Additional TEHIP Resources

- Special Topic Guides – arsenic, biological & chemical warfare agents, etc.
- Publications (including Glossary of Terms Used in Toxicology)
- ALTBIB - Alternatives Bibliography
- Toxicology Tutor
- LactMed – Drugs and Lactation

Other Relevant NLM Information

- PubMed/MEDLINE
- MedlinePlus (consumer health, includes drug information)
- Clinical Trials
- NLM Gateway – Multi-File Searching – Planned to go across all NLM Files



SIS

Specialized Information Services

Arctic Health

[SIS Home](#) | [About Us](#) | [Site Map & Search](#) | [Contact Us](#)

The Specialized Information Services (SIS) Division of the National Library of Medicine (NLM) is responsible for information resources and services in toxicology, environmental health, chemistry, HIV/AIDS, and specialized topics in minority health.



► Environmental Health & Toxicology

Databases and other resources related to toxicology and environmental health
Features TOXNET



► Chemical Information

Databases and other resources designed to help search for information by chemical name or structure
Features ChemIDplus: [Lite](#) and [Advanced](#)



► HIV/AIDS

Links to journal literature, clinical trials and treatment information, meeting abstracts, and other scientific and consumer-related resources



► Outreach Activities & Resources

Programs, resources and web sites for minority and other specific populations



► Directory of Health Organizations

Features DIRLINE and Health Hotlines

More to Explore

[SIS News](#)
[Tox Town Port Scene](#) **NEW!**
[Staff Directory](#)
[Fact Sheets](#)
[WISER](#)
[ToxSeek](#)

[Getting the Most from SIS's Environmental Health and Toxicology Resources](#) **NEW!**

Additional NLM Sites

[MEDLINE/PubMed®](#)
Search journal literature

[MedlinePlus®](#)
Consumer health information

[NLM Gateway](#)
Search multiple NLM databases

[Health Services Research & Public Health Information Programs](#)

[Bookshelf](#)
Search selected biomedical books



Environmental Health and Toxicology

SIS Specialized Information Services



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SIS Home >

Topics

- ▶ Chemicals and Drugs
- ▶ Diseases and the Environment
- ▶ Environmental Health
- ▶ Occupational Safety and Health
- ▶ Poisoning
- ▶ Risk Assessment and Regulations
- ▶ Toxicology
- ▶ Pesticide Exposure

Especially for

- ▶ The Public
- ▶ Researchers/Scientists
- ▶ Health Professionals
- ▶ Students/Educators
- ▶ Emergency Responders

Reference Tools

Getting the Most from SIS's
Calendar of Events
FAQ List

Listservs:

NLM-TOX-ENVIRO-HEALTH-L
WISER - Wireless Information
System for Emergency
Responders

MedlinePlus® Environmental
Health e-mail Announcement
List

More Chemical Information
Publications and Reference
Materials

List of NLM Databases and
Resources

More to Explore

ToxMystery
ALTBIB
Toxicology Tutorials
Toxicology Web Links
Education and Career Links
Fact Sheets
Database Descriptions
MedlinePlus: Consumer
Environmental Health
Information
DIRLINE®
Public Health Information
Health Services Research &
Public Health Information
Programs

TOXNET®

Collection of databases on
hazardous chemicals, toxic releases,
and environmental health

Search TOXNET for:

Search

Search a single database:

ChemIDplus	IRIS
CCRIS	ITER
DART	LactMed
GENE-TOX	TOXLINE
Haz-Map	TOXMAP
Household Products	TRI
HSDB	

- NLM's Environmental Health and Toxicology Resources (4 minutes, 7 KB, Flash player)
- Basic Searching of the Hazardous Substances Data Bank (8 minutes, 11 KB, Flash player)

Featured Site

Tox Town's New Port Scene. **NEW!**



National Institute of
Environmental Health
Sciences: The primary
NIH organization for
environmental health
research



Directory of Health Organizations

SIS Specialized Information Services

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[SIS Home](#) >

Search DIRLINE

Search: ☒ all of the words ☐ any of the words ☐ exact phrase

Fields: (if none checked, all fields will be searched.)

- ☐ Organization name or acronym
- ☐ MeSH Headings/Keywords

Select records containing:

- ☐ Only organizations with toll-free numbers
- ☐ Only organizations with services for the hearing impaired



Health Hotlines

Toll-free numbers for
over 300 organizations

Other NLM Resources

[MedlinePlus®](#)
[PubMed](#)
[NLM Gateway](#)
[LocatorPlus](#)

Support Pages

[Help](#)
[Fact Sheet](#)
[Disclaimer](#)
[Suggestion Form](#)



DIRLINE Search Results

[SIS Home](#)[DIRLINE](#)Items **1** through **20** of **47**Pages: [1](#) [2](#) [3](#) Organization Names are sorted in [relevancy ranked](#) order.

Select Record	Organization Name
1 <input type="checkbox"/>	Office of Drinking Water - Virginia Department of Health (ODW)
2 <input type="checkbox"/>	Drinking Water Program - Department of Environmental Protection - Massachusetts State Government (DWP)
3 <input type="checkbox"/>	National Drinking Water Clearinghouse - National Environmental Service Center - West Virginia University (NDWC)
4 <input type="checkbox"/>	Office of Ground Water and Drinking Water - U.S. Environmental Protection Agency (OGWDW)
5 <input type="checkbox"/>	Drinking Water Program - Division of Drinking Water and Environmental Management - California Department of Health Services - California State Government (DWP)
6 <input type="checkbox"/>	Division of Water Supply Protection - Massachusetts Department of Conservation and Recreation
7 <input type="checkbox"/>	Water Supply and Water Resources Division - National Risk Management Research Laboratory - U.S. Environmental Protection Agency (WSWR)
8 <input type="checkbox"/>	Office of Drinking Water Quality - Rhode Island Department of Health - State of Rhode Island
9 <input type="checkbox"/>	Office of Water Quality - Indiana Department of Environmental Management - Indiana State Government (OWQ)

[Save Checked Items](#)[Sort](#)[Details](#)[History](#)[Download](#)[Modify Search](#)[New Search](#)[Browse Index](#)[SIS Home](#)[MEDLINEplus Home](#)



Poisoning, Toxicology, Environmental Health Topics

- [Air Pollution](#)
- [Anthrax](#)
- [Arsenic](#)
- [Asbestos](#)
- Asbestosis see [Asbestos](#)
- [Biodefense and Bioterrorism](#)
- Biological Weapons see [Biodefense and Bioterrorism](#)
- Bioterrorism see [Biodefense and Bioterrorism](#)
- Campylobacter see [Food Contamination and Poisoning](#)
- [Carbon Monoxide Poisoning](#)
- Cell Phones see [Electromagnetic Fields](#)
- [Chemical Weapons](#)
- Cleaning Products see [Household Products](#)
- [Drinking Water](#)
- EMF see [Electromagnetic Fields](#)
- [Electromagnetic Fields](#)
- [Environmental Health](#)

[Home](#)[Search](#)[Listings](#)[Resources](#)[Help](#)[What's New](#)[About](#)

[Browse](#) : [By Condition](#) : [By Disease Heading](#) : **Injuries, Poisonings, and Occupational Diseases**

☐ **Include trials that are no longer recruiting patients.**

1. [Abdominal Injuries](#) (2 recruiting studies)
2. [Abnormalities, Radiation-Induced](#) (1 recruiting study)
3. [Alcohol-Induced Disorders](#) (9 recruiting studies)
4. [Alcohol-Related Disorders](#) (108 recruiting studies)
5. [Alcoholic Intoxication](#) (3 recruiting studies)
6. [Alcoholism](#) (100 recruiting studies)
7. [Amphetamine-Related Disorders](#) (5 recruiting studies)
8. [Amputation, Traumatic](#) (4 recruiting studies)
9. [Ankle Injuries](#) (4 recruiting studies)
10. [Arm Injuries](#) (16 recruiting studies)
11. [Asphyxia](#) (3 recruiting studies)
12. [Athletic Injuries](#) (2 recruiting studies)
13. [Back Injuries](#) (10 recruiting studies)
14. [Berylliosis](#) (1 recruiting study)
15. [Birth Injuries](#) (2 recruiting studies)
16. [Bites and Stings](#) (2 recruiting studies)
17. [Blast Injuries](#) (1 recruiting study)
18. [Botulism](#) (1 recruiting study)
19. [Brain Concussion](#) (5 recruiting studies)

[Search](#)[Clear](#)[Help](#)[FAQ](#)[What's New](#)[About](#)[Term Finder](#)[Limits/Settings](#)[Search Details](#)[History](#)[Locker](#)[Contact Us](#)

Results Summary: **6462** records found

[\[Bookmark this Search \]](#)

Bibliographic Resources [i](#)

2923 **MEDLINE/PubMed** - journal citations, abstracts

20 **NLM Catalog** - books, AVs, serials

25 **Bookshelf** - full text biomedical books

2872 **TOXLINE Subset** - toxicology citations

16 **DART** - Developmental and Reproductive Toxicology

3 **Meeting Abstracts**

Consumer Health Resources [i](#)

70 **MedlinePlus** - Health Topics

2 **MedlinePlus** - Drug Information

69 **MedlinePlus** - Medical Encyclopedia

16 **MedlinePlus** - Current Health News

5 **MedlinePlus** - Other Resources

8 **ClinicalTrials.gov**

3 **DIRLINE** - Directory of Health Organizations

0 **Genetics Home Reference**

0 **Household Products Database**

Other Information Resources [i](#)

10 **HSRProj** - Health Services Research Projects

1 **OMIM** - Online Mendelian Inheritance in Man

417 **HSDB** - Hazardous Substances Data Bank

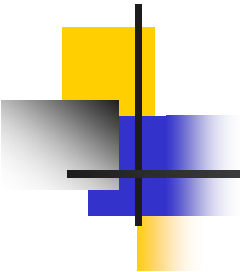
1 **IRIS** - Integrated Risk Information System

0 **ITER** - International Toxicity Estimates for Risk

0 **GENE-TOX** - Genetic Toxicology (Mutagenicity)

0 **CCRIS** - Chemical Carcinogenesis Research Information System

1 **Profiles in Science**



Part II

ChemIDplus



ChemIDplus

The ChemIDplus file is a database with two different applications:


- ChemIDplus Lite at:
<http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ChemIDplus Advanced at:
<http://chem.sis.nlm.nih.gov/chemidplus/>

- Chemical Identification File
- Chemical Dictionary/Directory File for chemicals cited in MEDLARS Files & outside resources
- Contains over 380,000 chemical records
- Structural Data for over 275,000 records
- Search options include ChemIDplus Lite (Basic search) and ChemIDplus Advanced




ChemIDplus Lite (Basic Search)

Lite search yields:

- Basic information buttons in the left column which can be used to access specific info such as names/synonyms, formula, classification codes, or the Full Record containing all basic information
- Links to various source “locators” with additional information on the chemical.  button gives a description of the source.
- Navigation buttons on the right can be used to return to the Main Query Page in TOXNET or proceed to an Advanced ChemIDplus Search



Note: The ChemIDplus Lite search input box accepts only chemical names (including all synonyms) or registry numbers. A partial name can be used with an asterisk(*) as a “starts with” feature. Example: EDTA*

ChemIDplus Lite (Basic Search) Result



National Library of Medicine
Specialized Information Services

About • Contact • Search



**ChemIDplus Lite
Record**

[Tox. & Env. Health](#) [TOXNET](#) [Lite](#)

Arsenic
RN: 7440-38-2

For more information about this substance,
you may select from the the links below.

Basic Information

[Full Record](#)

[Names & Synonyms](#)

[Formulas](#)

[Classification Codes](#)

[Registry Numbers](#)

[Notes](#)

[Toxicity](#)

File Locator

[CANCERLIT](#)

[CCRIS](#)

[DART/ETIC](#)

[DSL](#)

[EINECS](#)

[EMIC](#)

[GENETOX](#)

[HSDB](#)

[Haz-Map](#)

[IRIS](#)

[ITER](#)

[MEDLINE](#)

[MESH](#)

[MESH HEADING](#)

[PubChem](#)

[CANCER LITerature from Medline](#)

[NCI Chem Carcino Res Info Sys](#)

[Developmental and Reprod.Tox.](#)

[Domestic Sub. List of Canada](#)

[EU Inv of Exist. Comm. Chem Sub](#)

[Env. Mutagen Info. Center](#)

[EPA GENetic TOXicology](#)

[Hazardous Substances Data Bank](#)

[Occ. Exposure to Haz. Agents](#)

[EPA Integrated Risk Info. System](#)

[International Tox. Est. for Risk](#)

[MEDical literature onLINE](#)

[Medical Subject Headings File](#)

[Medical Subject Headings](#)

[PubChem](#)

Search Navigation

[Main Query Page](#)

[Advanced ChemIDplus Search](#)

Lists other names used

Link to PubMed articles

Begin a new search
in Lite or TOXNET

Types of Locators in ChemIDplus



Methylmercury II
RN: 22967-92-6

For more information about this substance, you may select from the the links below.

Basic Information

- Full Record
- Names & Synonyms
- Formulas
- Classification Codes
- Registry Numbers

Search Navigation

- Main Query Page
- Advanced ChemIDplus Search

File Locator

CANCERLIT	CANCER LITerature from Medline
DART/ETIC	Developmental and Reprod.Tox.
EMIC	Env. Mutagen Info. Center
HSDB	Hazardous Substances Data Bank
IRIS	EPA Integrated Risk Info. System
ITER	International Tox. Est. for Risk
MEDLINE	MEDical literature onLINE
MESH	Medical Subject Headings File
PubChem	PubChem
RTECS	Reg. of Toxic Eff. of Chem. Sub.
TOXLINE Core	NLM TOXLINE Core from MEDLINE
TOXLINE Special	NLM TOXLINE Special on TOXNET

Internet Locator

ChEBI	Chem Entities of Biological Interest
EPA CRS	EPA Substance Registry System
EPA Envirofacts	EPA Master Chemical Integrator

Superlist Locator

CA65	California Proposition 65 List
MA	Massachusetts Right-to-know Sub.
S110	ATSDR Priority List of Haz. Sub.

File locators link to NLM associated databases

Internet locators link to web resources with additional biomedical information

Superlist locators link to regulatory and governmental lists and websites

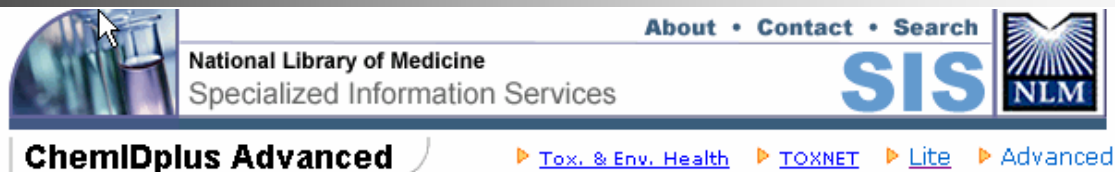


ChemIDplus Advanced

Advanced search input:

- Multiple search boxes such as: substance ID, toxicity, physical properties, structure, and more.
- Search boxes can be utilized simultaneously or one at a time. Some boxes have qualifiers (i.e. starts with, contains, between, greater than, etc.)
- Structure drawing and searching features
- History button saves last 10 search inputs
- Allows user to select number of results displayed per page

ChemIDplus Advanced



Insert name, registry #,
Classification code, & more

Search Clear History Help

Display 5 results

Substance Identification ⓘ

Name/Synonym Equals

Data is available for 380,919 records.

Qualify a toxicity search

Toxicity ⓘ

Test: between

(mg/kg or ppm)

Species:

Route:

Effect:

Toxicity data is available for 139,354 records.

Select a physical
property

Physical Properties ⓘ

Melting Point

between

Either Measurement Type

Physical property data was provided by [Syracuse Research Corporation](#) and is available for 25,461 records.

Qualify a property
search

Structure ⓘ

[View](#) [Help](#)

Powered by [ChemAxon Marvin](#)

Structure Search Options

☐ Substructure Search

☒ Similarity Search %

☐ Exact (parent only)

☐ Flex (parent, salts, mixture) **NEW**

☐ Flexplus (parent, all variations) **NEW**

Display structures using ⓘ

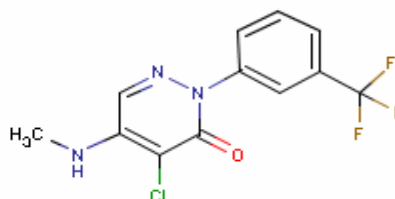
☒ Marvin ☐ Chime [Change](#)

Click inside box to
draw structure

Select the type
of structure search

ChemIDplus Advanced Search Result

NAME: Norflurazone
RN: 27314-13-2



MW: 303.67

[Enlarge Structure](#)

Click to enlarge and
manipulate structure

Same basic information
as Lite result

Basic Information

[Full Record](#)

[Structure](#)

[Names & Synonyms](#)

[Formulas](#)

[Classification Codes](#)

[Registry Numbers](#)

[Toxicity](#)

[Physical Properties](#)

For more information about this substance,
you may select from the the links below.

File Locator

[CANCERLIT](#)

[DART/ETIC](#)

[EINECS](#)

[EMIC](#)

[HSDB](#)

[IRIS](#)

[ITER](#)

[MEDLINE](#)

[MESH](#)

[PubChem](#)

[RTECS](#)

[TOXLINE Core](#)

[TOXLINE Special](#)

[TOXMAP](#)

[TRI2000](#)

[TRI2001](#)

[TRI2002](#)

[TRI2003](#)

- [CANCER LITerature from Medline](#)
- [Developmental and Reprod.Tox.](#)
- [EU Inv of Exist. Comm. Chem Sub](#)
- [Env. Mutagen Info. Center](#)
- [Hazardous Substances Data Bank](#)
- [EPA Integrated Risk Info. System](#)
- [International Tox. Est. for Risk](#)
- [MEDical literature onLINE](#)
- [Medical Subject Headings File](#)
- [PubChem](#)
- [Reg. of Toxic Eff. of Chem. Sub.](#)
- [NLM TOXLINE Core from MEDLINE](#)
- [NLM TOXLINE Special on TOXNET](#)
- [NLM Enviro. Health e-Maps](#)
- [EPA Toxics Release Inv. 2000](#)
- [EPA Toxics Release Inv. 2001](#)
- [EPA Toxics Release Inv. 2002](#)
- [EPA Toxics Release Inv. 2003](#)

Search Navigation

[Start New Query](#)

[Modify Query](#)

[Show Query](#)

[Search History](#)

[Structure Similarity Search](#)

[Transfer Structure](#)

[Basic ChemIDplus Search](#)

Advanced search
navigation features

Same locators
as Lite result



ChemIDplus Glossary

Names and Synonyms

- **Name of Substance**: Usually the most commonly used name, includes MeSH heading and USAN name
- **MeSH Heading**: NLM Medical Subject Heading
- **Systematic Name**: Describes molecular structure
- **Synonyms**: All other names found for the substance
- **Mixture Name**: Name of multi-component substance, one of which is the retrieved substance
- **SUPERLIST Name**: The name used by regulatory/guidance lists



ChemIDplus Glossary

- **Formulas**: The molecular formula in a hyphenated format.
- **Classification Codes**: Describe the general category assigned by a given source to a chemical based on toxicity, use and application, pharmacologic and/or therapeutic category, and status on certain chemical lists.
- **Notes**: A textual description of a compound's use and utility, often from MeSH controlled vocabulary.
- **Locators**: The names of NLM databases, and other major resources that have information about a given compound, usually hyperlinked.



ChemIDplus Glossary

- **CAS Registry Number**: Unique number of up to 9 digits assigned by Chemical Abstracts Service used to index chemicals. ChemIDplus uses the hyphenated format
- **ID**: The ID number is the CAS Registry Number in a non-hyphenated fixed length format or a unique number for entries that have no CAS Registry or NLM assigned numbers
- **Molecular Structure**: Display of structure (if present) via Chime or Marvin
- **Registry Numbers**: All CAS Registry Numbers known to be assigned over time to a specific compound



ChemIDplus Glossary

- **Toxicity** Values that indicate whether the dose caused death (LD) or other toxic non-lethal effect (TD) or whether it was administered as a lethal concentration (LC) or toxic concentration in the inhaled air (TC)
- **Physical Properties** Values for melting point, boiling point, water solubility, octanol/water partition coefficient, vapor pressure, acid dissociation constant, Henry's law, and OH radical reaction rate constant
- **Molecular Weight** The mass of a molecule

Note: Click on the Advanced Help button for detailed definitions and explanations of search features.



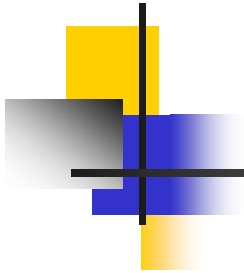
ChemIDplus Exercises

Using ChemIDplus Lite: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

1. Check the file locator to see what NLM databases contain information on phenytoin. Search DART without leaving ChemIDplus.
Type Phenytoin in search box, click Search. Click DART/ETIC in the middle blue box under File Locator, view record in slave window.
2. Locate the record for styrene and link to the Internet Locator ATSDR TOXFAQS. Next link to the NIOSH Pocket Guide. Is styrene on the EPA Clean Air Act (CAA1)? Activate the Classification Code button and find the IARC classification on carcinogenicity, click on the "i" to see the source.
Type styrene in the search box, click Search. Scroll down the middle blue box and under Internet Locators click the link to ATSDR TOXFAQS. Close the slave window and click NIOSH Pocket Guide also under Internet Locators. Next, scroll down and under Superlist Locator click the link to the CAA1 listing for styrene. Under Basic Information on the left, click the button for Classification Code. Under Superlist Classification Code, click the "i" for Overall Carcinogenic Evaluation..... to view this data source in the slave window.

Using ChemIDplus Advanced: <http://chem.sis.nlm.nih.gov/chemidplus/>

1. Find the "valium" record in ChemIDplus and use its structure to do substructure and similarity searches respectively. How many structures are in each category?
Type valium in the substance identification input box, click Search. Now click the Transfer Structure button in the right column. In the Structure input box, be sure the default substructure search is selected. Click search. View the result count. Now click the modify query button. In the Structure input box, select similarity search and choose 90 in the percentage pull-down box (the default is 80%). Click search. View the result count. This result give structures that are 90% similar or greater. If no results are retrieved, then a lower percentage must be used.
2. Identify all the HSDB records that are ozone depletors (CAA2).
In the Locator Code input box select HSDB from the first pull-down list. Type HSDB in the search box. Be sure the default "and" is selected in the second pull-down list. In the third pull-down list choose CAA2. Click Search.
3. Identify all compounds that have an orally administered LD50 less than 50mg/kg (less than 50mg/kg is considered extremely toxic by EPA guidelines-See Help Section under Toxicity).
In the Toxicity input box next to Test, select LD50 and less than from the pull-down boxes. Then, type 50 in the empty input box below Test. Next to Route, select oral from the pull-down box. Click search.
4. Find the logP value for the chemical DDT in the Physical Properties table. Use the Help Section to verify that this substance is stored in the fatty tissues of animals based on the logP value in the table.
Type DDT in the substance identification input box and click search. Click on the Physical Properties button under Basic Information. Note the logP value in the table in the slave window. Close the window. Click the Start New Query button to return to the main query page. Click the Help button. Click on the link to Chemical Properties. Scroll down and read the example given for logP values.



Part III

TOXNET Overview, HSDB, & Related Files



What is TOXNET?

- A free web-based system of databases on toxicology, environmental health, hazardous chemicals, toxic releases, chemical nomenclature, and specialty areas such as occupational health and consumer products
- A product of NLM's Toxicology and Environmental Health Information Program
- Chemical Nomenclature - ChemIDplus
- Toxicology Data (one record per chemical)– HSDB, IRIS, CCRIS, GENE-TOX, ITER, LactMED (can also search any combination of these files with “Multi-Databases” interface)
- Toxicology Literature (bibliographic references) – TOXLINE, DART
- Toxic Releases (of chemicals to the environment) – TRI
- Specialty Databases – HazMap, Household Products
- User Support – tehip@tehl.nlm.nih.gov or click on “Contact TOXNET”

Where is TOXNET?

toxnet.nlm.nih.gov



Toxicology Data Files - Content

Hazardous Substances Data Bank (HSDB) – from NLM

About 5000 Chemical Records

Human Health Effects

Emergency Medical Treatment

Animal Toxicity Studies

Metabolism/Pharmacokinetics

Pharmacology

Environmental Fate/Exposure

Environmental Standards & Regulations

Chemical/Physical Properties

Chemical Safety & Handling

Occupational Exposure Standards

Manufacturing and Use

Laboratory Methods

Special References

Synonyms and Identifiers



More about HSDB

- Factual Data Bank/Online Handbook
- Peer-Reviewed – Scientific Review Panel
- Review Status Tags – Peer Reviewed, QC Reviewed, Unreviewed
- Fully Referenced
- Data – Excerpted from books, government documents, technical reports, selected primary literature, databases. Some data compiled expressly for HSDB.
- Recent Radiation Data Enhancements to HSDB – Radionuclides and a separate record for Ionizing Radiation Added



Toxicology Data Files - Content

Chemical Carcinogenesis Research Information System (CCRIS) –

from the National Cancer Institute (NCI)

About 9000 Chemical Records

Carcinogenicity Studies

Tumor Inhibition Studies

Tumor Promotion Studies

Mutagenicity Studies

e.g. Carcinogenicity Studies Data Structure – species, route, tumor site/type of lesion, results, reference



Toxicology Data Files - Content

GENE-TOX

from the U.S. Environmental Protection Agency (EPA)

3214 Chemical Records

Note: GENE-TOX not updated since January 2000

Mutagenicity Studies

Data Structure – assay type, assay code, results, panel report, reference



Toxicology Data Files - Content

Integrated Risk Information System (IRIS) from the U.S. Environmental Protection Agency (EPA)

About 550 Chemical Records

Noncarcinogenic Assess. – Oral (RfD)
Noncarcinogenic Assess. – Inhal. (RfC)

Carcinogenic Assess. – Oral
Carcinogenic Assess. – Inhal.

- Contains EPA consensus scientific positions and quantitative values on cancer and non-cancer health effects that may result from lifetime oral or inhalation exposure to specific chemical substances in the environment
- Risk Assessment – Identification and quantification of risk. Function of toxicity and exposure
- Risk Assessment Process (National Academy of Sciences, 1983) – 1. Hazard identification, 2. Dose-Response assessment [IRIS], 3. Exposure assessment, 4. Risk Characterization



Toxicology Data Files - Content

International Toxicity Estimates for Risk Assessment (ITER)

from Toxicology Excellence for Risk Assessment (TERA)

A Non-profit Corporation

About 650 Chemical Records

Tabular and Comparative Risk Data for Cancer Oral, Non-Cancer Oral, Cancer Inhalation, Non-Cancer Inhalation Effects from:

Agency for Toxic Substances and Disease Registry, U.S. (ATSDR)

Environmental Protection Agency, U.S. (EPA)

Health Canada

International Agency for Research on Cancer (IARC)

NSF International (National Sanitation Foundation)

National Institute of Public Health and the Environment, Dutch (RIVM)

Independently-derived Values

Includes synopses, links to organization source documents



Toxicology Data Files – Content

Drugs and Lactation (LactMed)

Over 500 records

- Summary of Use During Lactation
- Drug Levels [*Maternal and Infant (Serum or Urine)*]
- Effects in Infants
- Possible Effects on Lactation
- AAP (American Academy of Pediatrics) Category
- Alternate Drugs
- References [*Hyperlinked to PubMed Record if available*]
- Substance Name
- CAS Registry Number
- Drug Class



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


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(e.g. antifreeze kidney failure,
chromium compounds, 7718-54-9)

For chemicals, add synonyms
and CAS numbers to search:

☒ Yes ☐ No

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Chemical names, ID numbers, or other
attributes can be searched, singly or in
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Default selection is to add synonyms.



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(e.g. asthma air pollution, ibuprofen fever, vinyl chloride)

References from Biomedical Literature

TOXLINE	Toxicology Literature Online	3842
DART	Developmental Toxicology Literature	191

Chemical, Toxicological, and Environmental Health Data

ChemIDplus	Chemical Identification/Dictionary	1
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CCRIS	Chemical Carcinogenesis Information	8
GENETOX	Genetic Toxicology Data	2
IRIS	Integrated Risk Information	1
ITER	International Toxicity Estimates for Risk	2
LactMed	Drugs and Lactation Database	0
TRI	Toxics Release Inventory	86
TOXMAP	Environmental Health e-Maps	Map It
Haz-Map	Occupational Exposure/Toxicology	Show me
Household Products	Health & Safety Information on Household Products	Show me

To search all or a combination of HSDB, CCRIS, GENETOX, IRIS, ITER, LactMed

Record counts may vary somewhat when databases are searched individually.



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For chemicals, add synonyms and CAS numbers to search: ☒ Yes ☐ No

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Pages: 1 2

Substance Names are sorted in [relevancy ranked](#) order.

Select
Record

Substance Name

The following is the primary record for the chemical. All of the query terms were found.

1 ☐ [ACRYLAMIDE](#)
79-06-1

More relevant records display
nearer the top of the list.

The following 37 records contain one or more of the requested chemical name(s) and all of the query terms anywhere in the record.

2 ☐ [ASPARAGINE](#)
70-47-3

3 ☐ [N-\(HYDROXYMETHYL\)ACRYLAMIDE](#)
924-42-5

4 ☐ [POLYACRYLAMIDE](#)
9003-05-8

5 ☐ [ACRYLONITRILE](#)
107-13-1

6 ☐ [STYRENE-7,8-OXIDE](#)

Note other chemical records in which
name acrylamide is mentioned.

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- ☐  [Synonyms and Identifiers](#)
- ☐  [Administrative Information](#)

ACRYLAMIDE

CASRN: 79-06-1

*For other data, click on the Table of Contents***Human Health Effects:**

Human Health Effects is default display only for HSDB.

Toxicity Summary:

Search term(s) highlighted in red.

IDENTIFICATION: **Acrylamide** is a white crystalline solid produced from acrylonitrile, which is present as a residue in technical grades of **acrylamide**. **Acrylamide** is mainly used in the production of polymers and copolymers for various purposes. All **acrylamide** in the environment is man-made, the main source being the release of the monomer residues from polyacrylamide used in water treatment or in industry. **HUMAN EXPOSURE**: **Acrylamide** is readily absorbed by ingestion, inhalation, and through the skin. **Acrylamide** is toxic and an irritant. Cases of **acrylamide** poisoning show signs and symptoms of local effects due to irritation of the skin and mucous membranes and systemic effects due to the involvement of the central, peripheral, and autonomic nervous systems. Local irritation of the skin or mucous membranes is characterized by blistering and desquamation of the skin of the hands (palms) and feet (soles) combined with blueness of the hand and feet. Effects on the central nervous system are characterized by abnormal fatigue, sleepiness, memory difficulties, and dizziness. With severe poisoning, confusion, disorientation, and hallucinations occur. Truncal ataxia is a characteristic feature, sometimes combined with nystagmus and slurred speech. Excessive sweating in the limb extremities is a common observation. Sign of central nervous system and local skin involvement may precede peripheral neuropathy by as much as several weeks. Peripheral neuropathy can involve loss of tendon reflexes, impairment of vibration sense, loss of other sensation, and muscular wasting in peripheral parts of the extremities. Nerve biopsy shows loss of large diameter nerve fibers as well as regenerating fibers. Autonomic nervous system involvement is indicated by excessive sweating, peripheral vasodilation, and difficulties in micturition and defecation. After cessation of exposure to **acrylamide**, most cases recover, although the course of improvement is prolonged and can extend over months to years. No epidemiological data on cancer due to exposure to **acrylamide** are available and, from the available data, it is not possible to form a conclusion concerning the carcinogenicity of

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ACRYLAMIDE

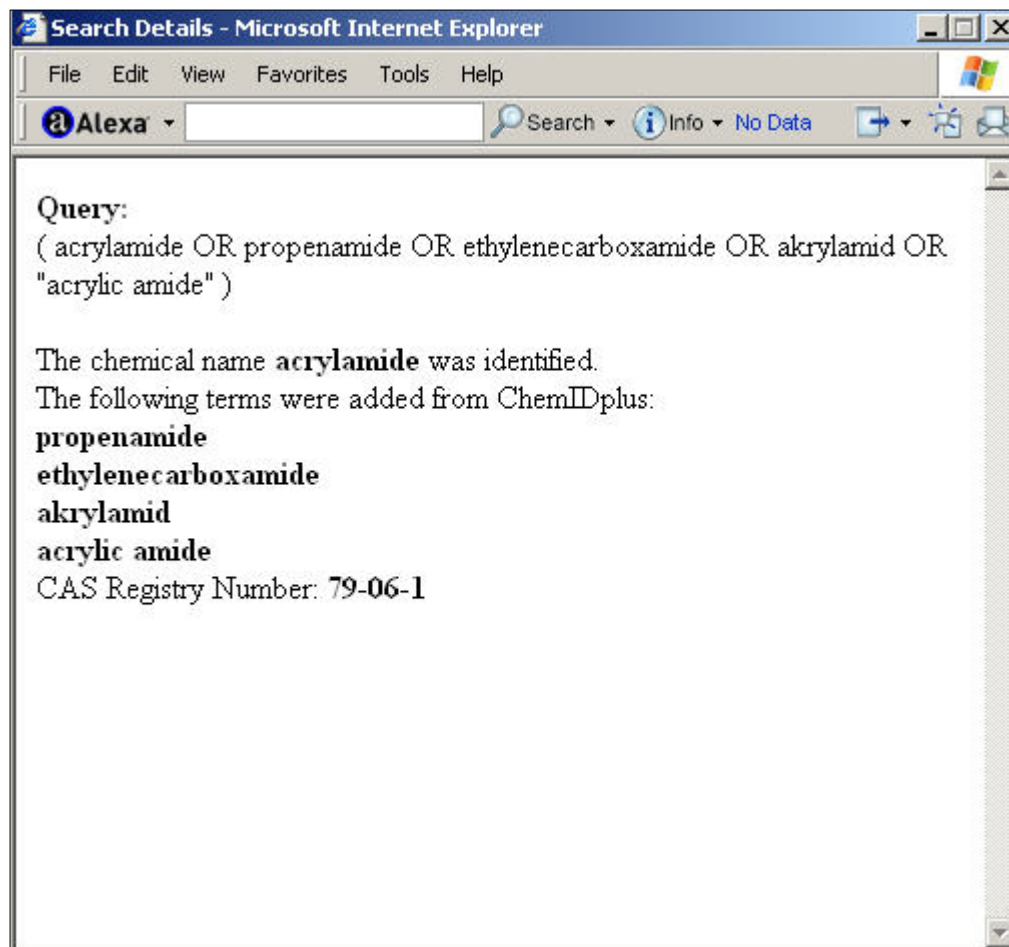
CASRN: 79-06-1

For other data, click on the Table of Contents

Environmental Fate & Exposure:

Environmental Fate/Exposure Summary:

Acrylamide's production and use in the production of polyacrylamide and amide monomers may result in its release to the environment through various waste streams. If released to air, a vapor pressure of 0.007 mm Hg at 25 deg C indicates **acrylamide** will exist solely as a vapor in the ambient atmosphere. Vapor-phase **acrylamide** will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 1.4 days. The half-life for the reaction of vapor-phase **acrylamide** with ozone is estimated to be 6.5 days. **Acrylamide** is not expected to be susceptible to direct photolysis in sunlight since it does not absorb light with wavelengths >290 nm. If released to soil, **acrylamide** is expected to have very high mobility based upon an estimated Koc of 10. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 1.8×10^{-9} atm-cu m/mole. Volatilization from dry soil surfaces is not expected based on **acrylamide's** vapor pressure. The nitrogen in **acrylamide** was recovered as inorganic nitrogen with recoveries after 3 and 14 days at 30 deg C ranging from 11-71% in Clarion soil and 74-95% in Canisteo soil, respectively. Results from these studies suggested that **acrylamide** is hydrolyzed in soil under aerobic conditions to produce ammonium ion, which is then oxidized to nitrite ion and nitrate ion. If released into water, **acrylamide** is not expected to adsorb to suspended solids and sediment based upon the estimated Koc. In a river die-away test, 90% of **acrylamide** disappeared in approximately 150 hours. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's Henry's Law constant. A BCF of 1 for fingerling trout, suggests the potential for bioconcentration in aquatic organisms is low. The hydrolysis half-life of **acrylamide** has been reported as >38 yrs. Occupational



“Details” for
acrylamide search

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acrylamide potato chips

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Add chemical synonyms and CAS numbers to search: ☒ Yes ☐ No


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ACRYLAMIDE

CASRN: 79-06-1

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Best Sections

Food Survey Values :

Acrylamide levels were measured in foods in the 2003 FDA Total Diet Survey, which represents 286 ready-to-eat foods in the US food supply(1). **Acrylamide** was generally not detected (detection limit 10 ppb) or detected infrequently in dairy, eggs, fats/oils, beverages, fruits, vegetables, legumes, mixtures (casseroles, sandwiches, soups, and pizzas), and meat/poultry/fish(1). Snack foods (corn/tortilla **chips**, microwave popcorn, **potato chips**, pretzels) contained some of the highest levels of **acrylamide**, ranging from 46 to 536 ppb(1). **Acrylamide** was also detected relatively frequently in the grains/starches/baked good category, with the highest levels found in graham crackers (211-647 ppb) and butter-type crackers (348-425 ppb)(1). **Acrylamide** was detected relatively infrequently in baby food products, with the highest levels found in arrowroot cookies (105-267 ppb), sweet potatoes (30-117 ppb), and teething biscuits (128-235 ppb)(1).

[(1) US Food and Drug Administration; Exploratory Data on Acrylamide in Food FY 2003 Total Diet Study Results. March 2004. Available at: <http://www.cfsan.fda.gov/~dms/acrydat2.html> as of April 7, 2004.]**PEER REVIEWED**

Food Survey Values :

Mean (ug/kg) **acrylamide** concentrations in various foods and food product groups from Norway, Sweden, Switzerland, the UK, and the US have been reported as: **potato** crisps/sweet **potato**: 1,312 (range 170-

Most relevant first.

Hot-Linked Document

Click to see acrylamide records in other databases.

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ACRYLAMIDE
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ACRYLAMIDE

CASRN: 79-06-1

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Substance Identification/Summary Table:

Substance Name: ACRYLAMIDE

CAS Registry Number: **79-06-1**

Risk Values - Summary Table:

Summary Risk Table for: ACRYLAMIDE							
Risk Value Type \ Organization	ATSDR	Health Canada	IARC	ITER	NSF Int	RIVM	U.S.EPA
Noncancer Oral	--	--	--	--	--	--	✓
Cancer Oral	--	--	--	--	--	--	✓
Noncancer Inhalation	--	--	--	--	--	--	--
Cancer Inhalation	--	--	--	--	--	--	✓
✓ = Chemical evaluated and ITER data online.							


Risk Data :

Risk Data - Noncancer Oral:





















ITER Noncancer Oral Risk Table for: ACRYLAMIDE							
Risk Value Parameter \ Organization	ATSDR	Health Canada	IARC	ITER	NSF Int	RIVM	U.S.EPA
Risk Value Name	--	--	--	--	--	--	RfD
Risk Value*	--	--	--	--	--	--	2E-4
Year	--	--	--	--	--	--	1988
Basis (Experimental)*	--	--	--	--	--	--	NOEL, 0.2
Basis (Adjusted)*	--	--	--	--	--	--	NA
Uncertainty Factor	--	--	--	--	--	--	1000
Critical Organ or Effect	--	--	--	--	--	--	Nervous System
Species	--	--	--	--	--	--	Rat
Study	--	--	--	--	--	--	Burek et al., 1980
View Specifics:	--	--	--	--	--	--	Click here

*In mg/kg body weight per day, unless otherwise specified.

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METHYLMERCURY

CASRN: 22967-92-6

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Substance Identification/Summary Table:

Substance Name: METHYLMERCURY

CAS Registry Number: 22967-92-6

Risk Values - Summary Table:

Risk Value Type \ Organization	ATSDRⁱ	Health Canadaⁱ	IARCⁱ	ITERⁱ	NSF Intⁱ	RIVMⁱ	U.S.EPAⁱ
Noncancer Oral	✓	--	--	✓	✓	✓	✓
Cancer Oral	✓	--	--	--	--	✓	✓
Noncancer Inhalation	✓	--	--	--	--	--	--
Cancer Inhalation	✓	--	--	--	--	✓	✓


















✓ = Chemical evaluated and ITER data online.

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AMERICIUM, RADIOACTIVE

CASRN: NO CAS RN

This record contains information specific for compounds containing americium and americium in the zero valence state; all americium nuclides are radioactive. For general information on radiation, such as transportation, sampling, analytical methods, regulations, and spill clean-up, refer to the [IONIZING RADIATION](#) record.

For other data, click on the Table of Contents

Best Sections**Environmental Fate/Exposure Summary :**

Most of the **radioactive americium** released to the environment occurred as a result of atmospheric testing of nuclear weapons in the 1950s and 1960s. Nuclear weapon testing injects **radioactive** material into the stratosphere, which results in wide dispersal of **radioactive americium** and other radionuclides. Routine releases of **radioactive americium** also occur from releases from nuclear reactors and reprocessing plants, and production and disposal of smoke detectors (**americium-241**, half-life=432.2 yrs) by producers and consumers. When released to the atmosphere, **radioactive americium** exists in the particulate-phase and is removed by wet and dry deposition. **Americium** has slight mobility in soils and sediments, and adsorbs strongly to metal oxides and clays, but may be transported on colloids. **Americium** occurs most commonly in the +3 oxidation state in the environment and the trivalent state is the only state of importance in biological systems. **Americium** bioconcentrates in aquatic organisms and accumulates in bones and muscles. Workers involved in producing ionization smoke detectors or other devices containing **americium** (**americium** dioxide), workers at nuclear reactors or Department of Energy (DOE) facilities, and workers who use **americium**-containing devices (neutron backscatter sources for checking roof leaks and road undermining, and well logging equipment) may be exposed to higher levels of **americium**. Since atmospheric testing of nuclear weapons has been discontinued for many years and Chernobyl-related fallout was low in the US, current exposure of the general population of the US to **radioactive americium** is expected to be low. The primary route of exposure to **radioactive americium** for the general population is through inhalation of dust and ingestion of foods. (SRC)

****PEER REVIEWED****

General Manufacturing Information :

Americium is a metal of the actinide series which is produced synthetically by neutron activation of uranium or plutonium followed by beta decay. Isotopes Twenty isotopes of **americium** are known, 232-Am through 248-Am, including three metastable states. All isotopes are **radioactive**. **Americium-243** and 241-Am, alpha emitters, are the longest lived with half-lives of 7,380 years

Contents

Contract all categories ☐Expand all categories ☐

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- ☐ [FULL RECORD](#)
- ☐ ☐ [Drug Levels and Effects](#)
 - ☐ [Summary of Use during Lactation](#)
 - ☐ [Drug Levels](#)
 - ☐ [Effects in Breastfed Infants](#)
 - ☐ [Possible Effects on Lactation](#)
 - ☐ [AAP Category](#)
 - ☐ [Alternate Drugs to Consider](#)
 - ☐ [References](#)
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 - ☐ [Substance Name](#)
 - ☐ [CAS Registry Number](#)
 - ☐ [Drug Class](#)
- ☐ ☐ [Administrative Information](#)
 - ☐ [LactMed Record Number](#)
 - ☐ [Last Revision Date](#)

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Phenobarbital

CASRN: 50-06-6

*For other data, click on the Table of Contents***LactMed Database****Drug Levels and Effects:****Summary of Use during Lactation:**

There is a great deal of inter- and inpatient variability in excretion of **phenobarbital** into breastmilk. **Phenobarbital** in breastmilk apparently can decrease withdrawal symptoms in infants who were exposed in utero, but it can also cause drowsiness in some infants, especially when used with other sedating drugs. If **phenobarbital** is required by the mother, it is not necessarily a reason to discontinue breastfeeding. Monitor the infant for drowsiness, adequate weight gain, and developmental milestones, especially in younger, exclusively breastfed infants and when using combinations of psychotropic drugs. Sometimes breastfeeding might have to be limited or discontinued because of excessive drowsiness and poor weight gain. If there is concern, infant serum concentrations of **phenobarbital** can be obtained. Measurement of an infant serum level might help rule out toxicity if there is a concern.

Drug Levels:

In published reports of anticonvulsant use during breastfeeding, most women were taking a combination of anticonvulsants. Some other anticonvulsants (e.g., phenytoin, carbamazepine) stimulate the metabolism of other drugs including anticonvulsants, whereas others (e.g., valproic acid) inhibit the metabolism of other drugs. Therefore, the relationship of the maternal dosage to the concentration in breastmilk can be quite variable, making calculation of the weight-adjusted percentage of maternal dosage less meaningful than for other drugs in this database.

Maternal Levels. In women taking **phenobarbital** for 3 days, average milk levels at 23 hours after the last dose were as follows: 90 mg daily in 4 women, 0.85 mg/L (range 0.2 to 1 mg/L); 150 mg daily in 2 women,



Boolean Searching, Field Qualification, Other Search Features

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- Asterisk (*) for truncation (e.g. carcinogen*)

LinkOut from PubMed to HSDB

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All: 1

1: Chest. 2003 Nov;124(5):1716-23.
 FREE full text article at www.chestjournal.org

Long-term intermittent exposure to high ambient CO₂ causes respiratory disturbance in submariners.

Margel D, White DP, Pillar G.

Israeli Naval Medical Department, Haifa, Israel.

BACKGROUND: During most of the cruise, submarines are detached from their environment. Therefore, O₂ levels are relatively low (19 kPa, 144 mm Hg) and CO₂ levels are high (1 kPa, 7.6 mm Hg). There are, however, periods during ventilation of the submarine in which CO₂ levels drop and O₂ levels increase. The objective of this study was to determine whether these unique gas changes might result in sleep-disordered breathing in submariners. METHODS AND MATERIALS: The sleep of eight healthy soldiers was assessed three times: (1) control night, in submarine docking; (2) at the beginning of the cruise (reflecting acute exposure to gas changes); and (3) at the end of the cruise (chronic exposure to gas changes). Each night was divided to three parts because of different CO₂ levels (secondary to ventilation of the submarine). Sleep and breathing were measured using the portable Watch PAT100 device (Itamar Medical, Ltd; Caesarea, Israel) to detect breathing abnormalities during sleep. RESULTS: Sleep and breathing data were categorized according to four CO₂ conditions: acute moderate (inhaled CO₂ levels of 2.3 to 5 mm Hg during first 1 to 2 nights of the cruise); acute high (inhaled CO₂ levels of 5 to 8 mm Hg during the first 1 to 2 nights of the cruise); chronic moderate (inhaled CO₂ levels of 2.3 to 5 mm Hg during nights 9 to 11); and chronic high (inhaled CO₂ levels of 5 to 8 mm Hg during nights 9 to 11).

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1: [Margel D et al](#) Long-term intermittent exposu...[PMID: 14605040]

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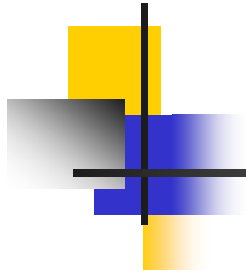
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Part IV

TOXLINE and Other Bibliographic Files



TOXLINE

TOXicology Literature onLine

- Covers pharmacological, biochemical, physiological, environmental, and toxicological effects of chemicals/other agents on living systems
- Citations, Abstracts, Keywords and/or MeSH (Medical Subject Headings)
- CAS Registry Numbers
- From 1965 (and earlier) to date
- Drawn from Secondary Sources, varying unit record formats
- Over 3 ½ million toxicology related records
- Recent consolidation of TOXLINE Core and TOXLINE Special



TOXLINE Components

- PubMed/MEDLINE – Major Component of TOXLINE and containing standard biomedical/toxicology literature
- Some features of PubMed:
 - MeSH Searching
 - Limit by field, publication type, age, gender, language, human or animal, etc.
 - MyNCBI – to store and update search strategies
 - Related articles
 - LinkOut + Links to Books
 - Interlibrary Loan (Loansome Doc)



TOXLINE Components (Continued)

- Technical Reports and Research Projects
 - Federal Research in Progress (FEDRIP)
 - Toxicology Document and Data Depository (NTIS)
 - Toxicology Research Projects (CRISP)
 - Toxic Substances Control Act Test Submissions (TSCATS)

- Special Journal and Other Research Literature
 - Developmental and Reproductive Toxicology (DART)
 - International Labour Office (CIS)
 - Swedish National Chemicals Inspectorate (RISKLINE)

- Meeting Abstracts (MTGABS)



TOXLINE Components (continued)

- Archival Collections (No Longer Being Updated)
 - Aneuploidy (ANEUPL)
 - Environmental Mutagen Information Center file (EMIC)
 - Environmental Teratology Information Center file (ETIC)
 - Epidemiology Information System (EPIDEM)
 - Hazardous Materials Technical Center (HMTC)
 - Health Aspects of Pesticides Abstract Bulletin (HAPAB)
 - International Pharmaceutical Abstracts (IPA)
 - NIOSHTIC (NIOSH)
 - Pesticides Abstracts (PESTAB)
 - Poisonous Plants Bibliography (PPIB)
 - Toxicological Aspects of Environmental Health (BIOSIS)



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- Relevancy Ranking
- Links to PubMed Citations
- Automatic Mapping to MeSH terms – e.g.
passive smoking --- tobacco smoke pollution
- Related Articles



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Over 100,000 Records

- Covers Developmental and Reproductive Toxicology (including Teratology) literature since 1965
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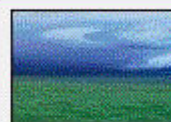
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1 ☐

Excess number of bladder cancers in workers exposed to ortho-toluidine and aniline.

Ward E; Carpenter A; Markowitz S; Roberts D; Halperin W
J Natl Cancer Inst. 1991, Apr 3; 83(7):501-6. [Journal of the National Cancer Institute.]
[PubMed]

[PubMed Citation](#)

2 ☐

Monitoring of aromatic amine exposures in workers at a chemical plant with a known bladder cancer excess.

Ward EM; Sabbioni G; DeBord DG; Teass AW; Brown KK; Talaska GG; Roberts DR;
Ruder AM; Streicher RP
J Natl Cancer Inst. 1996, Aug 7; 88(15):1046-52. [Journal of the National Cancer Institute.]
[PubMed]

[PubMed Citation](#)

3 ☐

Continued epidemic of bladder cancer in workers exposed to ortho-toluidine in a chemical factory.

Markowitz SB; Levin K
J Occup Environ Med. 2004, Feb; 46(2):154-60. [Journal of occupational and environmental medicine / American College of Occupational and Environmental Medicine.] [PubMed]

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Item 1 of 96

PubMed Citation 

Excess number of **bladder cancers** in workers exposed to ortho-**toluidine** and aniline.

Authors:

Ward E
Carpenter A
Markowitz S
Roberts D
Halperin W

Search terms
highlighted in red

Author Address: Industrywide Studies Branch, National Institute for Occupational Safety and Health,
Cincinnati, Ohio 45226.

Source: J Natl Cancer Inst. 1991, Apr 3; 83(7):501-6. [Journal of the National Cancer Institute.]

Comments:

Hotlinked
terms in blue

Comment in: J Natl Cancer Inst. 1991 Nov 20;83(22):1686-7 (medline/1749022)

Comment in: J Natl Cancer Inst. 1991 Oct 16;83(20):1507-8 (medline/1920498)

Comment in: J Natl Cancer Inst. 1994 Jan 5;86(1):59-62 (medline/8271286)

Abstract:

A retrospective cohort study of the incidence of **bladder cancer** was conducted in response to a union request for an evaluation of a possible excess number of cases of **bladder cancer** at a chemical plant in western New York State. Workers at the plant were exposed to two potential bladder carcinogens—ortho-**toluidine** (o-**toluidine**) and aniline. Incidence rates of **bladder cancer** among workers at the plant were compared with those of the population of New York State (excluding New York City). Among all 1749 workers at the plant, 13 cases of **bladder cancer** were observed versus 3.61 expected [standardized incidence ratio (SIR) = 3.60; 90% confidence interval (CI) = 2.13-5.73]. Among the 708 workers who worked in areas in which o-**toluidine** and aniline were used, 7 cases were observed versus 1.08 expected (SIR = 6.48; 90% CI = 3.04-12.2). Among the 288 maintenance, shipping, and janitorial workers thought to have been possibly exposed, 4 cases were observed versus 1.09 expected (SIR = 3.66; 90% CI = 1.25-8.37). Among the remaining 753 workers who were probably not exposed, 2 **bladder cancers** were observed versus 1.43 expected (SIR = 1.39; 90% CI = 0.25-4.39). Increased risk of **bladder cancer** was strongly associated with increased duration of employment in the department where o-**toluidine** and aniline were used (P less than .001). Among workers with 10 or more years of employment in the department, the SIR was 27.2 (90% CI = 11.8-53.7). o-**Toluidine** is an animal carcinogen more potent than aniline and is known to produce bladder tumors in rats; hence, it is more likely that o-**toluidine** is responsible for the observed excess number of cases of **bladder cancer**, although aniline may have played a role.

SELECTED RECORD PAGE

Medical Subject Headings (MeSH):

Adult
Aged
Aniline Compounds/*toxicity
Bladder Neoplasms/*chemically induced/epidemiology
Cohort Studies
Female
Humans
Male
Middle Aged
Occupational Exposure
Retrospective Studies
Risk Factors
Smoking/adverse effects
Toluidines/*toxicity

CAS Registry Numbers:

Aniline Compounds (0)
Toluidines (0)
aniline (62-53-3)
2-toluidine (95-53-4)

Language: English

International Standard Serial Number: 0027-8874 (Print)

Publication Types:

Journal Article

Entry Month: 1991

Title Abbreviation: J Natl Cancer Inst

Year of Publication: 1991

Last Revision Date: April 19, 1991

Medline Citation: NLM

Country: UNITED STATES

Citation Subset: IM

Medline Title Abbreviation: Journal of the National Cancer Institute

Stat: MEDLINE

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Document Number: medline/2005633

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# 6	toxline	(" bladder cancer " " bladder neoplasms ") AND (toluidine OR 26915-12-8 [m])	15:47:58	96
# 5	lact	(phenobarbital OR phenobarbital OR phenobarbitone OR phenemal OR luminal OR eskabarb OR sevenal OR phob OR phenyral OR phenylethylmalonylurea OR phenonyl OR phenoluric OR "phenobarbituric acid" OR phenobal OR nunol OR noptil OR neurobarb OR lubrokal OR lubergal OR lixophen OR liquital OR lepinaletten)	15:44:18	5
# 4	hsdb	[toxs] [care] [htox] [htxv] [seri] [warn] [meds] [popl] [rtex] [body] [avdi] [minf] [envs] [rtex] [body] [avdi] [nats] [arts] [fate] [biol] [abio] [bioc] [koc] [vws] [watc] [effi] [seds] [atmc] [food] [plnt] [fish] [anml] [milk] acrylamide potato chips [oevc]	15:40:09	1
# 3	hsdb	(acrylamide OR propenamide OR ethylenecarboxamide OR akrylamid OR "acrylic amide")	15:30:17	38
# 2	toxline, dart, hsdb, iris, iter, genetox, ccris, lact, tri2004, chemid, hpd, hazmap	(acrylamide OR propenamide OR ethylenecarboxamide OR akrylamid OR "acrylic amide" OR 79-06-1 [m])	15:29:25	5012
# 1	hsdb	(acrylamide OR propenamide OR ethylenecarboxamide OR akrylamid OR "acrylic amide")	15:28:59	38

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References are *unsorted*.

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- 1 ☐ **Chelators as antidotes of metal toxicity: therapeutic and experimental aspects.**
Blanusa M; Varnai VM; Piasek M; Kostial K
Curr Med Chem. 2005; 12(23):2771-94. [Current medicinal chemistry] [PubMed]
[PubMed Citation](#)
- 2 ☐ **Occupational allergic diseases as a clinical model to approach specific environmental reactivity.**
Cirila AM
Acta Biomed. 2005; 76 Suppl 2:45-9. [] [PubMed]
[PubMed Citation](#)
- 3 ☐ **Carcinogenic effect of nickel compounds.**
Lu H; Shi X; Costa M; Huang C
Mol Cell Biochem. 2005, Nov; 279(1-2):45-67. [Molecular and cellular biochemistry]
[PubMed]
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◀ Item 2 of 260 ▶

PubMed Citation 

Exposure to fuel-oil ash and welding emissions during the overhaul of an oil-fired boiler.

Authors:

Liu Y
Woodin MA
Smith TJ
Herrick RF
Williams PL
Hauser R
Christiani DC

Author Address: Department of Environmental Health, Harvard School of Public Health, Boston, Massachusetts, USA. youcheng.liu@yale.edu

Source: J Occup Environ Hyg. 2005, Sep; 2(9):435-43. [Journal of **occupational** and environmental hygiene.]

Abstract:

The health effects of exposure to vanadium in fuel-oil ash are not well described at levels ranging from 10 to 500 microg/m(3). As part of a larger **occupational** epidemiologic study that assessed these effects during the overhaul of a large oil-fired boiler, this study was designed to quantify boilermakers' exposures to fuel-oil ash particles, metals, and welding gases, and to identify determinants of these exposures. Personal exposure measurements were conducted on 18 boilermakers and 11 utility **workers** (referents) before and during a 3-week overhaul. Ash particles < 10 microm in diameter (PM(10), mg/m(3)) were sampled over full work shifts using a

one-stage personal size selective sampler containing a polytetrafluoroethylene filter. Filters were digested using the Parr bomb method and analyzed for the metals vanadium (V), **nickel** (Ni), iron (Fe), chromium (Cr), cadmium (Cd), lead (Pb), manganese (Mn), and arsenic (As) by inductively coupled plasma mass spectrometry. Nitrogen dioxide (NO₂) was measured with an Ogawa passive badge-type sampler and ozone (O₃) with a personal active pump sampler. Time-weighted average (TWA) exposures were significantly higher ($p < 0.05$) for boilermakers than for utility **workers** for PM₁₀ (geometric mean: 0.47 vs. 0.13 mg/m³), V (8.9 vs. 1.4 microg/m³), Ni (7.4 vs. 1.8 microg/m³) and Fe (56.2 vs. 11.2 microg/m³). Exposures were affected by overhaul time periods, tasks, and work locations. No significant increases were found for O₃ or NO₂ for boilermakers or utility **workers** regardless of overhaul period or task group. Fuel-oil ash was a major contributor to boilermakers' exposure to PM₁₀ and metals. Vanadium concentrations sometimes exceeded the 2003 American Conference of Governmental **Industrial** Hygienists (ACGIH) threshold limit value.

Medical Subject Headings (MeSH):

Adult
Air Pollutants, **Occupational**/adverse effects/*analysis
Environmental Monitoring/*methods
Fuel Oils/*analysis/toxicity
Humans
Inhalation Exposure/adverse effects/*analysis
Middle Aged
Nitrogen Dioxide/analysis
Occupational Exposure/adverse effects/*analysis
Ozone/analysis
Particle Size
Power Plants/instrumentation
Research Support, U.S. Gov't, Non-P.H.S.
Respiratory Protective Devices
Risk Assessment/*methods
Threshold Limit Values
Vanadium/*analysis/toxicity
*Welding

CAS Registry Numbers:

Air Pollutants, **Occupational** (0)
Ozone (10028-15-6)
Nitrogen Dioxide (10102-44-0)
Vanadium (7440-62-2)

Language: English

International Standard Serial Number: 1545-9624 (Print)

Publication Types:

Journal Article

Entry Month: 2005

Title Abbreviation: J Occup Environ Hyg

Year of Publication: 2005

Last Revision Date: July 28, 2005

Medline Citation: NLM

Country: United States

Citation Subset: IM

Medline Title Abbreviation: Journal of **occupational** and environmental hygiene

Stat: MEDLINE

Document Number: medline/16048845

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1: [J Occup Environ Hyg.](#) 2005 Sep;2(9):435-43.

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Exposure to fuel-oil ash and welding emissions during the overhaul of an oil-fired boiler.

[Liu Y](#), [Woodin MA](#), [Smith TJ](#), [Herrick RF](#), [Williams PL](#), [Hauser R](#), [Christiani DC](#).

Department of Environmental Health, Harvard School of Public Health, Boston, Massachusetts, USA.
youcheng.liu@yale.edu

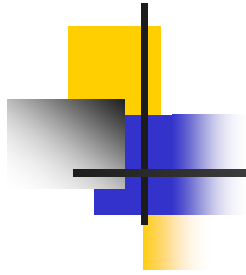
The health effects of exposure to vanadium in fuel-oil ash are not well described at levels ranging from 10 to 500 microg/m(3). As part of a larger occupational epidemiologic study that assessed these effects during the overhaul of a large oil-fired boiler, this study was designed to quantify boilermakers' exposures to fuel-oil ash particles, metals, and welding gases, and to identify determinants of these exposures. Personal exposure measurements were conducted on 18 boilermakers and 11 utility workers (referents) before and during a 3-week overhaul. Ash particles < 10 microm in diameter (PM(10), mg/m(3)) were sampled over full work shifts using a one-stage personal size selective sampler containing a polytetrafluoroethylene filter. Filters were digested using the Parr bomb method and analyzed for the metals vanadium (V), nickel (Ni), iron (Fe), chromium (Cr), cadmium (Cd), lead (Pb), manganese (Mn), and arsenic (As) by inductively coupled plasma mass spectrometry. Nitrogen dioxide (NO(2)) was measured with an Ogawa passive badge-type sampler and ozone (O(3)) with a personal active pump sampler. Time-weighted average (TWA) exposures were significantly higher ($p < 0.05$) for boilermakers than for utility workers for PM(10) (geometric mean: 0.47 vs. 0.13 mg/m(3)), V (8.9 vs. 1.4 microg/m(3)), Ni (7.4 vs. 1.8 microg/m(3)) and Fe (56.2 vs. 11.2 microg/m(3)). Exposures were affected by overhaul time periods, tasks, and work locations. No significant increases were found for O(3) or NO(2) for boilermakers or utility workers regardless of overhaul period or task group. Fuel-oil ash was a major contributor to boilermakers' exposure to PM (10) and metals. Vanadium concentrations sometimes exceeded the 2003 American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value.

PMID: 16048845 [PubMed - indexed for MEDLINE]

Related Links

- ▶ Pulmonary function in workers exposed to low levels of fuel-oil ash. [J Occup Environ Med. 1999]
- ▶ Estimation of personal exposures to particulate matter and metals in boiler overhaul [J Occup Environ Med. 2005]
- ▶ Molecular markers of acute upper airway inflammation in workers exposed to fuel-oil ash. [Am J Respir Crit Care Med. 1998]
- ▶ Acute respiratory symptoms in workers exposed to vanadium-rich fuel-oil ash. [Am J Ind Med. 2000]
- ▶ Urine vanadium concentrations in workers overhauling an oil-fired boiler. [Am J Ind Med. 1998]
- ▶ [See all Related Articles...](#)

Display AbstractPlus Show 20 Sort by Send to



Part V

TRI, Specialty Files, New Initiatives



Toxics Release Inventory (TRI) U.S. Environmental Protection Agency (EPA)

TRI 87-04 (18 years) – About 1,562,569 Records

- Facility Identification (Facility Name, Address, Phone, etc.)
- Substance Identification (Chemical Name, CAS RN, Uses, etc.)
- Environmental Release of Chemical (in Air, Water, Land, Underground Injection)
- Waste Treatment
- Off-Site Waste Treatment
- Source Reduction and Recycling (Quantity Released, Energy Recovery, Quantity Recycled, Quantity Treated)



TRI Background

- Right-to-Know Movement – Workplace, Community
- OSHA Hazard Communication Standard – 1983
- SUPERFUND = CERCLA (1980)
- Bhopal (1984) and smaller scale chemical disasters
- SARA (Superfund Amendments and Reauthorization Act) (1986)
 - Title 3 = Emergency Planning and Community Right-to-Know Act
 - Section 313 = Toxic Release Reporting
- Pollution Prevention Act of 1990

Toxics Release Inventory (TRI) - Annual environmental releases of over 600 toxic chemicals by U.S. facilities.

Select Database

- ChemIDplus
- HSDB
- TOXLINE
- CCRIS
- DART
- GENETOX
- IRIS
- ITER
- LactMed
- Multi-Database
- TRI**
- Haz-Map
- Household Products
- TOXMAP
- TOXNET Home

Search TRI

Chemical Name or CAS Registry Number

Add synonyms and CAS numbers to search:
☒ Yes ☐ No

TRI Files:

<input type="checkbox"/> TRI2004	<input checked="" type="checkbox"/> TRI2003
<input checked="" type="checkbox"/> TRI2002	<input checked="" type="checkbox"/> TRI2001
<input type="checkbox"/> TRI2000	<input type="checkbox"/> TRI1999
<input type="checkbox"/> TRI1998	<input type="checkbox"/> TRI1997
<input type="checkbox"/> TRI1996	<input type="checkbox"/> TRI1995
<input type="checkbox"/> TRI1994	<input type="checkbox"/> TRI1993
<input type="checkbox"/> TRI1992	<input type="checkbox"/> TRI1991
<input type="checkbox"/> TRI1990	<input type="checkbox"/> TRI1989
<input type="checkbox"/> TRI1988	<input type="checkbox"/> TRI1987

Facility Names
 (Separate multiple entries with commas)


Facility Location
 (Separate multiple entries for state, city/state, or zip with commas. For example: NJ, DE, or Trenton, NJ, Houston, TX, or 21112, 21224.)

☐ State
 ☒ City/State
 ☐ County/State
 ☐ Zip

Standard Industrial Classification Code
 (Separate multiple entries with commas)

Greater Than for
 Total Environmental Release

Env. Health & Toxicology


Portal to
environmental
health and
toxicology
resources

Support Pages

- Help
- Fact Sheet
- Sample Record
- TOXNET FAQ

Select all years or any combination.

Geographic search included

Can range from 0 and in power of 10 amounts to 100,000,000 lbs.

Ranging by total release amount. Can also range on air, water, land, underground injection or click on "No Release Selected."

To view summary environmental
and off-site waste transfer release
totals.

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TRI2003, TRI2002, TRI2001
Search Results

[Env. Health & Toxicology](#) ▶ [TOXNET](#) ▶ [TRI2003, TRI2002, TRI2001](#)



Please click on **Modify Search** button to modify TRI search strategy.

TRI2003: 1 TRI2002: 1 TRI2001: 1
Click on the database name to repeat the search in that database

Items 1 through 3 of 3
*Facility/Substance Names are **unsorted**.*

Select Record	Database	Facility/Substance Name
1 <input type="checkbox"/>	TRI2003	YORK CASKET MISSOURI METHYL ETHYL KETONE MARSHFIELD, MO
2 <input type="checkbox"/>	TRI2002	YORK CASKET MISSOURI METHYL ETHYL KETONE MARSHFIELD, MO
3 <input type="checkbox"/>	TRI2001	YORK CASKET MISSOURI METHYL ETHYL KETONE MARSHFIELD, MO

Mapping capability.



Contents

Contract all categories ☐

Expand all categories ☐

Select

Clear

- ☐ [FULL RECORD](#)
- ☐ [Facility Identification](#)
- ☐ [Substance Identification](#)
- ☒ [Environmental Release of Chemical](#)
- ☐ [Waste Treatment](#)
- ☐ [Off-Site Waste Transfer](#)
- ☐ [Source Reduction and Recycling](#)
- ☐ [Administrative Information](#)

TRI2003

METHYL ETHYL KETONE YORK CASKET MISSOURI MARSHFIELD, MO

For other data, click on the Table of Contents

Facility Identification:

Facility Name/Address:

YORK CASKET MISSOURI

521 GEORGE ST

MARSHFIELD, (WEBSTER County) MO 65706

EPA Facility Number: 65706YRKQL197GE

EPA Region: 7

Federal Facility Status: Commercial

Covered Facility: 0

FIPS State/County Code: 29225

Public Contact: HARRY KAUFMAN

Public Contact Telephone Number: (417) 468-6500

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8600 Rockville Pike, Bethesda, MD 20894,
[National Institutes of Health](#),
[Department of Health & Human Services](#)
[Copyright and Privacy Policy](#),
[Freedom of Information Act](#), [Accessibility](#)
Customer Service: tehip@tehl.nlm.nih.gov.

Standard Industrial Classification Code:

[3995](#) (Burial caskets)

Latitude: 37 degrees 19 minutes 56 seconds

Longitude: 92 degrees 55 minutes 28 seconds

Centroid Latitude: 37 degrees 33 minutes 2222 seconds

Centroid Longitude: 92 degrees 92 minutes 4444 seconds

Facility Dun & Bradstreet Number: 062343066

EPA Identification Number: MOD006327274

NPDES Permit Number: NA

UIC ID Number: NA

Parent Company Name: MATTHEWS INTERNATIONAL CORP

Parent Company Dun & Bradstreet Number: 004341533

Substance Identification:

CAS Registry Number: 78-93-3

Trade Secret Status: 0

Trade Secret Chemical Name: NA

Mixture Component Identity: NA

Manufacturing Uses:

Processing Uses: (2c) As an article component

Other Uses and Activities: (3a) As a chemical processing aid

Maximum Amount on Site: Mean - 5000 lbs

Environmental Release of Chemical:

Non-Point Air Emissions Estimates:

Non-Point Air Release: 2,500 lbs./rep yr. 2003

Basis of Estimate: (C) Mass Balance Calculations

Point Air Emissions Estimates:

Point Air Release: 24,100 lbs./rep yr. 2003

Basis of Estimate: (C) Mass Balance Calculations

Total Air Release: 26,600 lbs./rep yr. 2003

Water Discharge Estimates:

Receiving Stream: NA

Water Release: NA

Total Water Release: 0 lbs./rep yr. 2003

Releases to Underground Injection:

Underground Injection Well Class: Underground Injection On-site to Class I wells

Underground Injection Release: NA

Underground Injection Well Class: Underground Injection On-site to Class II-V wells

Underground Injection Release: NA

Underground Injection Total: 0 lbs./rep yr. 2003

Land Release Estimates:

Disposal Method: RCRA Subtitle C Landfills

Land Release: NA

Disposal Method: Other Landfills

Land Release: NA

Disposal Method: Land Treatment/Application/Farming

Land Release: NA

Disposal Method: RCRA Subtitle C Surface Impoundments

Land Release: NA

Disposal Method: Other Surface Impoundment

Land Release: NA

Disposal Method: Other Disposal

Land Release: NA

Total Land Release: 0 lbs./rep yr. 2003

Total Environmental Release: 26,600 lbs./rep yr. 2003

Waste Treatment:

Treatment Methods/Efficiency:

General Wastestream: (N) Not Applicable

Sequential Treatment: NA

Influent Concentration: NA

Treatment Efficiency: 0%

Basis of Treatment Data: NA

Off-Site Waste Transfer:

Publicly Owned Treatment Works:

Name: NA

Street Address: NA

City: NA

State: NA

ZIP Code: NA

County: NA

Basis of Estimate: NA

Total POTW Transfer: 0 lbs./rep yr. 2003

Other Off-Site Locations:

Off-Site EPA ID: NA
Off-Site Name: NA
Street Address: NA
City: NA
State/Province: NA
ZIP Code: NA
County: NA
Control: OTHER

Other Off-Site Location Transfer:

Other Off-Site Location Transfer Subtotals: 0

Total Off-Site Locations Transfer: 0 lbs./rep yr. 2003

Source Reduction and Recycling:**Source Reduction and Recycling Table:**

	PRIOR (2002)	CURRENT (2003)	PERCENT CHANGE	NEXT (2004)	FUTURE (2005)
On-site Disposal to Class I Underground Injection Wells, RCRA Subtitle C Landfills, and Other Landfills	NA	NA	NA	NA	NA
Other On-site Disposal or Other Releases	24,000	26,600	10.83 %	26,600	26,600
Off-site Disposal to Class I Underground Injection Wells, RCRA Subtitle C Landfills, and Other Landfills	NA	NA	NA	NA	NA
Other Off-site Disposal or Other Releases	NA	NA	NA	NA	NA

Total Disposal or Releases (A)	NA	NA	NA	NA	NA
On-Site Energy Recovery	NA	NA	NA	NA	NA
Off-Site Energy Recovery	NA	NA	NA	NA	NA
On-Site Recycling	NA	NA	NA	NA	NA
Off-Site Recycling	NA	NA	NA	NA	NA
On-Site Treated	NA	NA	NA	NA	NA
Off-Site Treated	NA	NA	NA	NA	NA
Total Used for Energy Recovery, Recycled or Treated (B)	0	0	NA	0	0
Totals (A+B)	0	0	NA	0	0

On-Site Recycling Methods Current Year: NA

On-Site Energy Recovery Methods Current Year: NA

Source Reduction Identifiers:

Source Reduction Activities: NA

Source Reduction Activities: (W58) Other process modifications

Source Reduction Methods: (T05) Employee recommendation (independent of a formal company program)

Source Reduction Activities: (W51) Instituted recirculation within a process

Source Reduction Methods: (T05) Employee recommendation (independent of a formal company program)

Source Reduction Activities: (W13) Improved maintenance scheduling, recordkeeping, or procedures

Source Reduction Methods: (T05) Employee recommendation (independent of a formal company program)

Accidental Release Total: 0 lbs./rep yr. 2003

Production Ratio/Activity Index: 0000001.10

Administrative Information:

Submission Number: 1303201319035

Form Type: FORM R - LONG

Reporting Year: 2003



Chemical Reference Information

Resources for specific
chemical information:

- [HSDB](#) [i](#)
- [ATSDR](#) [i](#)

[List of TRI chemicals](#)

Toxicology Citations [i](#) for this Map Area

[Search TOXLINE](#)

Questions

- [? What TRI chemicals are mapped in TOXMAP?](#)
- [? Does TOXMAP show all sources of toxic chemicals released into the environment?](#)
- [? How accurate is TRI data?](#)
- [? What should I understand about chemicals and toxicity while using TOXMAP?](#)
- [? Whom do I contact](#)

Search Results [i](#)

TRI Releases Data - 1 on-site [TRI](#) release reported nationwide

[Print this map](#)



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Apply to this map

- [U.S. Census Data](#) [i](#)
- [Income Data](#) [i](#)
- [Health Data](#) [i](#)
- [Reference Data](#) [i](#)

See details for this map

Facilities reporting to TRI [i](#)

[Hide list](#)

Page 1 of 1
(1 releases total)

1. [YORK CASKET MISSOURI](#)

MAP CONTROLS

TRI [i](#)

- ☐ None
- ☐ Facilities

Superfund [i](#)

- ☒ None
- ☐ All NPL

Demographic [i](#) [\(more...\)](#)

- ☒ None
- ☐ Population Density - 2000

TRI Facilities

1. YORK CASKET MISSOURI

TRI Facility ID: 65706YRKQL197GE

[top](#)

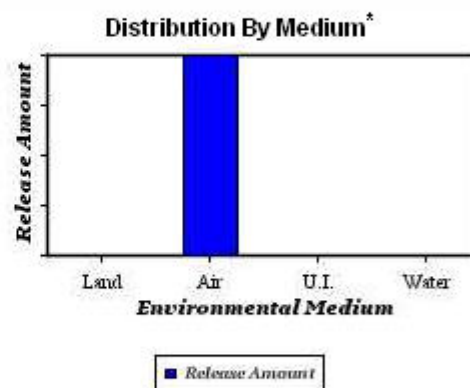
521 GEORGE STREET
MARSHFIELD, MO 65706

Emissions Estimates:

METHYL ETHYL KETONE (78-93-3)

Environmental Medium	Release Amount (lbs./rep yr. 2003)
Air	26,600
TOTAL	26,600

- ▶ [Details about this release](#)
- ▶ [All chemicals reported by this facility](#)
- ▶ [Releases summary table for this facility](#)



* Small values may not be visible on chart. Refer to Chemical Table at left



Toxics Release Inventory (TRI) Program

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Methyl Ethyl Ketone (MEK) To Be Removed From The Toxics Release Inventory (TRI) List: No Reports Are Required For The 2004 Reporting Year

- [Why is MEK being removed from the TRI List?](#)
- [What type of notice will EPA publish?](#)
- [Why are no MEK reports required for reporting year 2004?](#)
- [Should facilities that have already filed a 2004 TRI report for MEK withdraw those reports?](#)
- [How can I get more background on EPA's TRI Program?](#)
- [What is the status of the petition to remove MEK from the Clean Air Act list of hazardous air pollutants?](#)

Q: Why is MEK being removed from the TRI List?

A: EPA is taking the regulatory action necessary to remove MEK from the TRI list as required by the District Court.

In March of 1998, EPA denied a petition from the Ketones Panel of the Chemical Manufacturers Association (CMA) to remove MEK from the TRI list (63 FR 15195). The American Chemistry Council (ACC) (formerly CMA) challenged EPA's decision in U.S. District Court for the District of Columbia. On March 26, 2004, the District Court upheld EPA's petition denial on the basis that EPA's denial of the petition was lawful and appropriate. ACC appealed the District Court's decision to the D.C. Circuit Court of Appeals. On May 10, 2005, the D.C. Circuit Court vacated the District Court's decision and remanded "so that it can direct EPA to delete MEK from the TRI." The Circuit Court issued its mandate on June 13, 2005.

Q: What type of notice will EPA publish?

A: A final rule that removes MEK from the TRI list pursuant to the Court's order has been signed and will publish in the Federal Register shortly. The rule will make the removal of MEK effective for the 2004 reporting year.

Q: Why are no MEK reports required for reporting year 2004?

A: EPA will not require facilities to report MEK for the 2004 reporting year because the court order removing MEK from the TRI was issued before July 1, 2005. The final rule states that TRI facilities are not required to report releases of and other waste management information on MEK that occurred during the 2004 reporting year or for activities in the future.

Q: Should facilities that have already filed a 2004 TRI report for MEK withdraw those reports?

A: No, there is no need for facilities to withdraw MEK reports that they have already filed for reporting year 2004. EPA will not be including those reports in the 2004 public Toxics Release Inventory.



Search

as



Agent



Disease



Job



Text Search

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1. [By Types of Agents](#)
2. [By Adverse Effects](#)
3. [Alphabetically](#)

- **Occupational Diseases**

1. [By Types of Diseases](#)
2. [By Jobs and Symptoms](#)
3. [Alphabetically](#)

- **High Risk Jobs**

1. [By Types of Jobs](#)
2. [Alphabetically](#)

Haz-Map: Information on Hazardous Chemicals and Occupational Diseases

by

Jay A. Brown, M.D., M.P.H.

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Last updated: October 20, 2005



Search

carpenters

as



Agent



Disease



Job



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carpenters was searched as word(s) in all of the text fields. Results are sorted in relevancy ranked order.

Search results: 2 record(s) found in Agents table. [Next Section](#)

- [Wood dust, all soft and hard woods](#)
- [Chlorothalonil](#)

Search results: 1 record(s) found in Diseases table. [Next Section](#) [Back to Top](#)

- [Nasal sinus cancer](#)

Search results: 3 record(s) found in Jobs table. [Next Section](#) [Back to Top](#)

- [Helpers--Carpenters](#)
- [Carpenters](#)
- [Cabinetmakers & Bench Carpenters](#)

Search results: 1 record(s) found in Industries table. [Next Section](#) [Back to Top](#)

- [Finish Carpentry Contractors](#)

Haz-Map Search	More Searches	Haz-Map Help	Glossary	References
Browse Haz-Map		Search TOXNET		
Disease/Syndrome	Nasal sinus cancer			
Category	Cancer, Occupational			
Acute/Chronic	Chronic			
Comments	<p>A sentinel health event (occupational) associated with exposure to hardwood dusts (woodworkers, cabinet and furniture makers); radium (radium processors, dial painters); chromates (producers, processors & users); nickel (smelting & refining); chlorophenols (sawmill workers & carpenters); and an unknown agent (boot & shoe industry); [Mullan] Agents associated with sino-nasal cancer include cigarette smoking, wood and leather dust, nickel refining, chromates, mustard gas manufacturing, isopropanol manufacturing, and possibly welding. [LaDou, p. 296] Softwood dust is associated with squamous cell carcinoma, and hardwood dust is associated with adenocarcinoma of the nasal cavity. An increased risk exists for sawmill workers, furniture workers, wood products workers, and carpenters. No increased risk exists for workers in forestry, logging, or paper and pulp. [Dement J. Wood Dust. In: Bingham E, Cohnssen B, Powell C, eds. Patty's Toxicology, 5th ed. New York: John Wiley & Sons; 2001:619-49] Seventy percent of patients with sinonasal adenocarcinoma reported in Denmark between 1965 and 1974 had worked for many years in wood-working jobs. [Skov T, Mikkelsen S, Svane O, Lynge E. Reporting of occupational cancer in Denmark. Scand J Work Environ Health 1990;16:401-5]</p>			
Latency/Incubation	Years to decades			
Diagnostic	Biopsy			
ICD-9 Code	160.0			

Highlight terms in text and click

Haz-Map Search		More Searches		Haz-Map Help		Glossary		References	
Browse Haz-Map						Search TOXNET			
Agent Name		Wood dust, all soft and hard woods							
Major Category		Biological Agents							
Category		Wood Dusts & Extracts							
Description		Dust from various types of wood;							
Comments		<p>Softwood dust is associated with squamous cell carcinoma, and hardwood dust is associated with adenocarcinoma of the nasal cavity. An increased risk for nasal sinus cancer exists for sawmill workers, furniture workers, wood products workers, and carpenters. No increased risk exists for workers in forestry, logging, or paper and pulp. [Dement J. Wood Dust. In: Bingham E, Cohnssen B, Powell C, eds. Patty's Toxicology, 5th ed. New York: John Wiley & Sons; 2001:619-49] The nontropical woods such as white pine rarely cause allergic contact dermatitis in carpenters. [Marks, p.314] "Occupational asthma due to Western red cedar dust exposure is the most common type of occupational asthma in the Pacific Northwest." [Chan-Yeung & Malo, 1994] There are many other wood dusts that can cause asthma including oak, mahogany, African maple, Central American walnut, ash, ebony, cinnamon, etc. IARC classifies hardwoods as human carcinogens.</p>							
Exposure Assessment									
Skin Designation (ACGIH)		No							
TLV (ACGIH)		1 mg/m3(beech and oak hardwood), 5 mg/m3(softwood)							
STEL (ACGIH)		10 mg/m3(softwood)							
Explanatory Notes		Notice of Intended Change (for 2002): TLV = 2 mg/m3 for nonallergenic and noncarcinogenic wood dust, 0.5 mg/m3 for Western red cedar, and 1mg/m3 for other respiratory allergenic wood dust, birch, mahogany, teak, walnut, oak and beech. [ACGIH]							
Adverse Effects									
IARC Carcinogen		Known Carcinogen							

Haz-Map Search		More Searches	Haz-Map Help	Glossary	References
Browse Haz-Map				Search TOXNET	
Job Name	Carpenters				
Definition	<p>Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; wood stairways, window and door frames, and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation. Include brattice builders who build doors or brattices (ventilation walls or partitions) in underground passageways to control the proper circulation of air through the passageways and to the working places. [SOC] "The nontropical woods (e.g., white pine) used by carpenters rarely cause allergic contact dermatitis." [Marks, p. 314]</p>				
Category	Construction				
SOC Code	47-2031				

Haz-Map Search		More Searches	Haz-Map Help	Glossary	References
Browse Haz-Map			Search TOXNET		
Industry Name	Finish Carpentry Contractors				
Comments	Carpenters and joiners had increased risk for nasal cancer and Hogkin's lymphoma from wood dust and solvents. [BC Cancer Agency]				
Description	This industry comprises establishments primarily engaged in finish carpentry work. The work performed may include new work, additions, alterations, maintenance, and repairs.				
Category	Construction				
NAICS Code	238350				
Related Information in Haz-Map					
Job Tasks	High risk job tasks associated with this industry: <ul style="list-style-type: none">• Apply arsenic preservatives to wood• Installed insulation before 1975• Machine allergenic wood and inhale dust• Remove insulation installed before 1975• Remove lead coatings• Saw or sand arsenic-treated wood• Spray epoxy or polyurethane paint, shellac, lacquer, or varnish• Use epoxy, isocyanate, or formaldehyde-resin adhesives, finishes, or sealants• Use n-hexane as a solvent in glues, coatings, or degreasers• Use polyfunctional aziridine hardener in paints, varnishes, or other coatings				

Household Products Database

National Institutes of Health
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MSDS

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Health & Safety Information on Household Products

What's under your kitchen sink, in your garage, in your bathroom, and on the shelves in your laundry room? Learn more about what's in these products, about potential health effects, and about safety and handling.

Information in the Household Products Database is taken from a variety of publicly available sources, including brand-specific labels and Material Safety Data Sheets ([MSDS](#)) prepared by manufacturers.

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Lubricant, Sealant,
and more...



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Cleaners, Toilet Bowl Cleaner,
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Herbicide, Insecticide,
and more...



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Swimming Pool Products,
and more...



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Makeup, Shampoo, Soap,
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Brand Information

Brand Name: Old Spice Shave Cream
Form: aerosol foam
Product Category: Personal care/use >> Men's Products >> shaving cream/gel
Customer Service No.: 800-262-1637
Date Entered: 2001-05-31
Related Items: [Products with similar usage in this database](#)

Manufacturer

Manufacturer: Procter & Gamble Co.
Address: P.O. Box 599
City: Cincinnati
State: OH
Zip Code: 45201
Telephone Number: 513-983-1100
Fax Number: 513-562-4600
Toll Free Number: 800-543-7270
Date Info Verified: 2003-01-01
Related Items: [Products by this manufacturer](#)

Health Effects

[Search TOXNET](#)

The following information (Health Effects, Handling/Disposal, and Ingredients) is taken from the product label and/or the [Material Safety Data Sheet \(MSDS\)](#) prepared by the manufacturer. The National Library of Medicine does not evaluate information from the product label or the Material Safety Data Sheet.

Acute Health Effects: From MSDS:
ROUTES OF ENTRY: Skin, oral, eye, inhalation
HEALTH HAZARDS (ACUTE AND CHRONIC): Acute - eye: mild transient irritation; oral: gastrointestinal irritation.
Chronic - N/A

SIGNS OF SYMPTOMS OF EXPOSURE: Eye - transient burning/stinging/tearing
Oral - nausea, vomiting, diarrhea

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: N/A

Chronic Health Effects: MSDS: Chronic: None known
Carcinogenicity: The manufacturer's Material Safety Data Sheet (MSDS) does not address the subject of carcinogenicity.

First Aid: MSDS: EMERGENCY AND FIRST AID PROCEDURES: Eye - flush with water for 15 minutes;
Oral - dilute with fluids; Skin - rinse thoroughly with water.

Health Rating: N
Flammability Rating: N
Reactivity Rating: N
HMIS Rating Scale: 0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe;
N = No information provided by manufacturer; * = Chronic Health Hazard
MSDS Date: 1998-08-19

Handling/Disposal

Handling: MSDS: PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
Store in a cool dry area in a properly labeled, tightly closed container.
OTHER PRECAUTIONS: Do not expose to heat or ignition source.

Disposal: MSDS: WASTE DISPOSAL METHOD:
Dispose in accordance with local, state, and Federal regulations.

Ingredients from MSDS/Label

Chemical	CAS No / Unique ID	Percent
Isobutane	000075-28-5	
Butane	000106-97-8	
Propane	000074-98-6	
Fragrance(s)/perfume(s)	000000-00-1	
Lanolin	008006-54-0	
Stearic acid	000057-11-4	
Triethanolamine	000102-71-6	
Sodium lauryl sulfate (SLS)	000151-21-3	
Laureth-23	999999-11-0	
Methylparaben	000099-76-3	
Aloe extract	008001-97-6	
Water	007732-18-5	

Note: Brand names are trademarks of their respective holders.
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Highlight terms in text
and click

TOX-TOWN

Home(((Sound ON)))Town MapHelpAboutEspañolTox & HealthNeighborhoods



Drinking WaterFactoryHomesOffices & StoresSchoolParkAll Locations

ArsenicAsbestosBenzeneCarbon MonoxideChromiumLeadAll Chemicals

Tox Town

Text Version

Welcome to the Town
An introduction to toxic chemicals and environmental health risks you might encounter in everyday life, in everyday places.

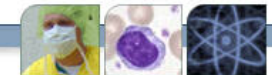
- Neighborhoods**
Select a view of the **Town, City, US-Mexico Border, Farm** or **Port** to learn about suburban, urban, rural, border and coastal health risks.
- Locations**
Click on a location in the neighborhood, like the school, and find out more about the chemicals that could be in that location. Also learn about health risks that might be in that location.
- Chemicals**
Roll your mouse over a chemical name to see where it might be found in the neighborhood. Then click the button for selected Internet information on that chemical.
- Are these chemicals in MY community?**

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Tox Town developed by: [Specialized Information Services](#), [What's New?](#)



RADIATION EVENT MEDICAL MANAGEMENT

Guidance on Diagnosis & Treatment for Health Care Providers



SEARCH


[WHAT KIND OF EMERGENCY?](#) | [INITIAL EVENT ACTIVITIES](#) | [PATIENT MANAGEMENT](#) | [MANAGEMENT MODIFIERS](#) | [TOOLS & GUIDELINES](#)

WHAT KIND OF EMERGENCY?

- Radiological Dispersal Devices:
Dirty Bomb, Other Dispersal Methods, Hidden Sealed Source
- Nuclear Explosions: Weapons, Improvised Nuclear Devices
- Nuclear Reactor Accidents
- Transportation Accidents
- Discovering an Event

INITIAL EVENT ACTIVITIES

- Onsite Activities
- Triage Guidelines
- Hospital Activities

OTHER AUDIENCES

- First Responders in the Field
- Mental Health Professionals
- Hospitals
- Public Information Officers
- Radiation Safety and Protection
- Preplanning
- Practices and Drills

ABOUT THIS SITE

- Who Is It For?
- Who Produced This Site?
- Disclaimers
- List of Consultants
- Join the REMM ListServ
- Contact us: Provide Site Feedback
- Download REMM to Your Computer
- System Requirements (e.g., Allow Pop-ups)

PATIENT MANAGEMENT

- Choose Appropriate Algorithm:
Evaluate for Contamination/Exposure
- Contamination
- Exposure (Acute Radiation Syndrome)
- Exposure + Contamination

MANAGEMENT MODIFIERS

- Radiation + Trauma
- Burn Triage and Treatment
- Mass Casualty
- Psychological Issues
- Specific Populations

TOOLS & GUIDELINES

- Dose Estimator for Exposure
- Template for Hospital Orders
- Use of Blood Products
- Follow-up Instructions
- Manage Long-Term Monitoring
- Management of the Deceased
- Develop a Hospital Medical Response Team
- Develop a State Response Plan
- Equip an Emergency Room for Decontamination

REFERENCE/DATA CENTER

- Dictionary
- Animations, Illustrations, Photos
- Emergency Contacts
- Abbreviations
- Understanding Radiation
- Sources of Radiological/Nuclear Information

FEATURES

- Polonium-210 Information: Properties, Treatment, and Fact Sheets
- NIH Radiation Countermeasures Strategic Plan, 6/2005 (NIH/NIAD)
- Medical Countermeasures Program Against Radiological and Nuclear Threats (NIH/NIAD)

QUICK LINKS

- **New Users: Where Do I Start?**
- Isotopes of Interest
- Countermeasures
- Dose Estimator for Exposure
- Manage ARS Subsyndromes
- Time/Dose Effects in ARS
- Strategic National Stockpile
- Animations, Illustrations, Photos
- Dictionary
- Emergency Contacts
- Download This Site
- Print Algorithms & Tables

OTHER WEB RESOURCES

- | | |
|--------|-----------|
| ■ AFRR | ■ HHS |
| ■ AHRQ | ■ IAEA |
| ■ CDC | ■ NCRP |
| ■ DHS | ■ NRC |
| ■ DOE | ■ OSHA |
| ■ EPA | ■ REAC/TS |
| ■ FDA | ■ WHO |





Environmental Health and Toxicology

SIS Specialized Information Services



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- ▶ [Continuing Education and Tutorials](#)
- ▶ [Distance Learning](#)
- ▶ [Education Outreach](#)
- ▶ [K-12 Education](#)
- ▶ [Miscellaneous Specialized Resources](#)
- ▶ [General Science Resources](#)
- ▶ [Accreditation Boards](#)
- ▶ [Career Resources](#)
- ▶ [Professional Societies](#)
- ▶ [International Resources](#)

More to Explore

[Environmental Health Information Outreach](#)

[ToxTutor](#)

[Tox Web Links](#)

This Web site aggregates resources related to toxicology and environmental health education, its study and teaching, career paths and opportunities, including accreditation, and outreach for the public.

Academic Program Directories

{Formal undergraduate and graduate on - site programs leading to degrees}

- Graduate Programs in Toxicology
 - [Academic and Post - Doctoral Programs and Web Sites](#)
{U.S. Society of Toxicology}



PFOA

Search

Clear

[Clear selection\(s\)](#)

☒ **NLM TOXNET**

- ☒ [HSDB](#)
- ☒ [TOXLINE](#)
- ☒ [ALTBIB](#)
- ☒ [CCRIS](#)
- ☒ [ChemIDplus](#)
- ☒ [DART](#)
- ☒ [GENE-TOX](#)
- ☒ [Haz-Map](#)
- ☒ [Household Products](#)
- ☒ [IRIS](#)
- ☒ [ITER](#)
- ☒ [TRI-2003](#)
- ☒ [LactMed](#)

☒ **Other NLM**

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- ☒ [PubMed](#)
- ☒ [Arctic Health](#)
- ☒ [Bookshelf](#)
- ☒ [ClinicalTrials.gov](#)
- ☒ [DIRLINE](#)
- ☒ [PubMed Central](#)
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☐ **U.S. Government**

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- ☐ [ATSDR](#)
- ☐ [CDC](#)
- ☐ [CDC - NIOSH](#)
- ☐ [CDC - elCosh](#)
- ☐ [CDC - NASD](#)
- ☐ [CPSC](#)
- ☐ [CSB](#)
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- ☐ [DOE - Energy Citations](#)
- ☐ [DOE - Environmental Policy & Guidance](#)
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- ☐ [FDA - CDER](#)
- ☐ [FirstGov](#)
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- ☐ [CPDB](#)
- ☐ [EXTOXNET](#)
- ☐ [NSC](#)
- ☐ [Scorecard](#)
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ToxSeek

Meta-Search & Clustering Engine
for Environmental Health and Toxicology



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[New search](#) [Modify search](#)

PFOA

Search

Clear

Try: poa

[Hide hits](#)

NLM TOXNET

HSDB - 3	TOXLINE - 346	ALTBIB - 0	CCRIS - 2
ChemIDplus - 0	DART - 7	GENE-TOX - 0	Haz-Map - 0
Household Products - 0	IRIS - 0	ITER - 0	LactMed - 0
TRI-2004 - 0	TOXMAP - 0		

Other NLM

MedlinePlus - 0	PubMed - 246	Arctic Health - 0	Bookshelf - 0
ClinicalTrials.gov - 0	DRLINE - 0	PubMed Central - 41	NLM Catalog - 1
PubChem - 1			

72 Initial Results for: PFOA...

Result Clusters

in Relevance Order

in Relevance Order

1 2 3 4 5 6 Next >

perfluorooctanoic acid (38)

[PERFLUOROOCTANOIC ACID](#) [\[Preview\]](#)

HSDB - Synonym: pfoa335-67-1 [Source: HSDB](#)

exposure (14)

[PERFLUOROOCTANOIC ACID](#) [\[Preview\]](#)



More to Come

- Updating and Expansion of HSDB's Med Surveillance
- Dietary Supplements Labels Database
- Drug Portal
- World Library of Toxicology, Chemical Safety, and Environmental Health
- Revision of Tox-Tutor in partnership with U.S. SOT
- TOXREF – Therapeutic/Normal, Toxic, Lethal Levels of chemicals in biological samples
- Environmental Health Nomenclature Collaboration
- Environmental Information Coalition/Earth Portal



Browse & Search

▼ Brands

▼ Uses Claimed by
Manufacturer

▼ Active Ingredients

▼ Manufacturers



Cassia Marilandica

The Dietary Supplements Labels Database offers information about ingredients in more than a thousand selected brands of dietary supplements. It enables users to determine what ingredients are in specific brands, and to compare ingredients in different brands. Information is also provided on medical benefits claimed by manufacturers. **These claims by manufacturers have not been evaluated by the Food and Drug Administration to diagnose, treat, cure or prevent any disease.**

Active ingredients of dietary supplements in this database are linked to other National Library of Medicine databases such as [MedlinePlus®](#) and [PubMed®](#) to allow users to understand the characteristics of ingredients and view the results of research pertaining to them, including the following characteristics:

- Therapeutic use
- Efficacy in humans
- Adverse effects
- Mechanism of action

The Database can be searched by brand names, uses noted on product labels, specific active ingredients, and manufacturers.

[Warnings](#) and [Recalls](#) from the U.S. Food and Drug Administration (FDA), related to specific ingredients and supplement brands have also been provided.



News and Alerts

- News
- About
- Clinical Alerts
- FAQs

By Audience

The Public
Health Professionals
Researchers
Librarians
Students/Educators

By Drug Class

Prescription
Over-the-counter
Dietary Supplements
Drugs of Abuse
Investigational

By Resource

Pill Image Database
DailyMed
MedlinePlus
MedlinePlus en español
PubMed/MEDLINE
TOXNET
Clinical Trials
ChemIDplus
PubChem
RxNorm
MESH
UMLS
NLM Catalog
DRLINE
History of Medicine

Drug Information Portal

Search Drug Information

Search for a drug:

- ▶ [Find Information on a Drug](#)
- ▶ [Find Treatment for a Disease](#)
- ▶ [Identify a Pill](#)
- ▶ [Find a Clinical Trial](#)
- ▶ [Find a Treatment Guideline](#)
- ▶ [Identify Potential Drug Interactions](#)

Consumer Oriented Drug Topics for the Public

- ▶ [Antibiotics](#)
- ▶ [Antidepressants](#)
- ▶ [Cancer Chemotherapy](#)
- ▶ [Drug Safety](#)
- ▶ [Hormone Replacement Therapy](#)
- ▶ [Medicines](#)
- ▶ [Over-the-counter Medicine](#)
- ▶ [Pain Relievers](#)

Disease/Condition Treatment Prevention

- ▶ [Disorders and Conditions Topics \(MedlinePlus\)](#)
- ▶ [Clinical Trials for Diseases and Conditions \(ClinicalTrials.gov\)](#)
- ▶ [Disease Searches in PubMed/MEDLINE](#)
- ▶ [Treatment Guidelines for HIV/AIDS \(AIDSInfo\)](#)
- ▶ [Health Organizations \(DIRLINE\)](#)

Drug Names, Structures, and Properties

- ▶ [Drug Names and Identifiers](#)
- ▶ [Drug Spell Checker](#)
- ▶ [Chemical Properties](#)
- ▶ [Chemical Structure of Drugs](#)

Drug of the Week



Rabeprazole (ra-BE-pray-zole) is used to treat certain conditions in which there is too much acid in the stomach. ([learn more](#))

Drug Informatics Systems

Tools
Vocabularies/Nomenclature
Classification/Taxonomy
Semantic Relations
Names/Identifiers
Sign up for UMLS License

Population Groups

Pregnant and Nursing Women
AIDS/HIV

Small Molecules & Pharmacogenomics

PubChem Bioassay
GEO Profiles
GEO Datasets
PubMed/MEDLINE

History of Medicine Collections

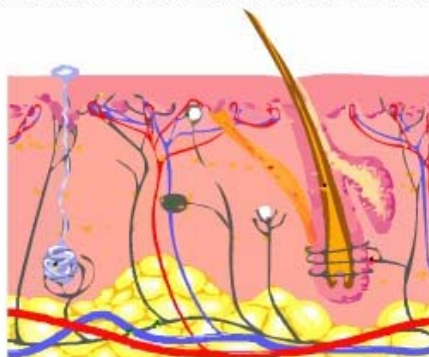
Search HMD's Collection
Search HMD's Image Database
Arabic/Persian Medicine
East Asian Medicine
Western Medicine



How Is Dose Measured?

Measuring the **absorbed dose** is more difficult than quantitating the **exposure** dose since it requires information about the way that different animals absorb agents through various routes of exposure (e.g. ingestion, inhalation, dermally) and under differing conditions; e.g., absorption through a young male rat's skin vs. absorption through drinking water in an aged female monkey. Information about absorption is collected through laboratory experiments, generally performed on a limited number of animals. Because of ethical and other considerations, such laboratory studies are generally performed on rodents and rarely on humans. As a result, there is a considerable level of uncertainty in extrapolating the effects of absorbed dose from laboratory animal studies to humans.

Click on a Route to see a More detailed view:



Dermally



Ingestion



Inhalation

Section: **3** Page: **3**

Slide 10 of 17



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World Library of Toxicology, Chemical Safety, and Environmental Health

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Regional Information

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Czech Republic



Denmark



Finland



France



Germany



Italy



Netherlands



Norway



Poland



Russia (In Process)



Spain



Sweden



Switzerland



Turkey (In Process)



United Kingdom

Prospective Participants



Albania



Andorra



Austria



Belarus



Belgium



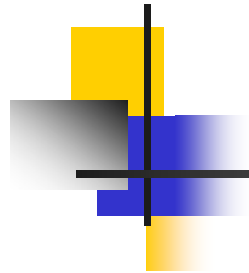
Bosnia and Herzegovina



Bulgaria



Croatia



Part VI

Non-NLM Resources



Professional Associations

- Society of Toxicology – <http://www.toxicology.org/>
- Society of Environmental Toxicology and Chemistry – <http://www.setac.org>
- American Academy of Clinical Toxicology – <http://www.clintox.org>
- American Association of Poison Control Centers – <http://www.aapcc.org>
- Society of Risk Analysis – <http://www.sra.org>
- Other groups in environmental health, occupational health, industrial hygiene, health physics etc.



U.S. Government Resources

- Agency for Toxic Substances and Disease Registry (ATSDR) – <http://www.atsdr.cdc.gov>
- Environmental Protection Agency (EPA) – <http://www.epa.gov>
- Food and Drug Administration – <http://www.fda.gov>
 - National Center for Toxicological Research – <http://www.fda.gov/nctr>
- National Institute for Occupational Safety and Health – <http://www.cdc.gov/niosh>



U.S. Government Resources (continued)

- National Institute of Environmental Health Sciences – <http://www.niehs.nih.gov>
- National Toxicology Program – <http://ntp-server.niehs.nih.gov>
- U.S. Chemical Safety and Hazard Investigation Board – <http://www.csb.gov>

Some State Government Sites

- New Jersey Department of Health and Senior Services – Division of Epidemiology, Environmental and Occupational Health – <http://www.state.nj.us/health/eoh>
- California – Office of Environmental Health Hazard Assessment – <http://www.oehha.ca.gov>



Some Chemical Databases

- Chemfinder – <http://www.chemfinder.com>
- Scorecard (from Environmental Defense) – <http://www.scorecard.org>
- Environmental Fate Databases & more (from Syracuse Research Corporation) – <http://www.syrres.com/eSc/efdb.htm>
- EXTOXNET (pesticide information) – <http://ace.orst.edu/info/extoxnet>



Some Chemical Databases (continued)

- PAN (Pesticide Action Network) Pesticides Database – <http://www.pesticideinfo.org>
- Where to Find Material Safety Data Sheets on the Internet – <http://www.ilpi.com/msds>
- RxList, the Internet Drug Index – <http://www.rxlist.com>
- International Programme for Chemical Safety (IPCS) INCHEM – <http://www.inchem.org/>

Also Consider:

- Scirus - Elsevier Science - <http://www.scirus.com/>



Other Web Sites

- UNEP (United Nations Environment Programme) Chemicals – <http://www.chem.unep.ch>
- Intergovernmental Forum on Chemical Safety - <http://www.who.int/ifcs/>
- Inter-Organization Programme for the Sound Management of Chemicals - <http://www.who.int/iomc/>
- National Council for Science and the Environment – <http://www.ncseonline.org>
- Society of Environmental Journalists – <http://www.sej.org>
- TEHIP/NLM Web Links – <http://sis.nlm.nih.gov/enviro/toxweblinks.html>



Some Commercial (\$) Databases

- BIOSIS (Thomson Scientific) – <http://www.biosis.org>
- Chemical Abstracts & CAS Registry – Chemical Abstracts Service – <http://www.cas.org> (also <http://stnweb.cas.org>)
- CCINFOweb (some resources including IPCS/INCHEM are free) – CCOHS – <http://www.ccohs.ca>
- CIS Database (on occupational health) (from the International Labour Office) (free as a TOXLINE subfile) – <http://www.ilo.org/public/english/protection/safework/cis/products/cisdoc.htm>



Some Commercial (\$) Databases (continued)

- EMBASE – Elsevier – <http://www.embase.com>
- Environment Abstracts – CIS - <http://www.lexisnexis.com>
- MICROMEDEX Databases – MICROMEDEX – <http://www.micromedex.com>
- Science Direct - Elsevier - <http://www.sciencedirect.com/>
- STN (from ACS/CAS) - <http://www.cas.org/stn.html>
- Toxicology Abstracts – Cambridge Scientific Abstracts – <http://www.csa.com>
- Web of Science – Thomson Scientific – <http://www.isinet.com/>



Some Web Search Engines and Tools

- AltaVista – <http://www.altavista.com>
- Google – <http://www.google.com>
- Hotbot – <http://www.hotbot.com>
- Yahoo – <http://www.yahoo.com>
- Meta Search Engines
 - Metacrawler – <http://www.go2net.com>
 - Dogpile – <http://www.dogpile.com>
 - Ask.com – <http://www.ask.com>
- Searchenginewatch – <http://www.searchenginewatch.com>
- Mailing List Directories – CATALIST - <http://www.lsoft.com/lists/listref.html>
- And Remember ToxSeek



TOXNET Exercises

[Note: There is typically more than one “right” approach to answering each of the following questions. Answers, where they are provided, are merely representative, not definitive. Explore.]

TOXICOLOGY DATA FILES

1. What is the CAS registry number and octanol/water partition coefficient of 2,6-dinitrotoluene and what is this chemical used for? [HSDB]

In HSDB, search for **2,6-dinitrotoluene** and click on the 2,6-dinitrotoluene record on the Search Results Page. In the Table of Contents, expand **Chemical/Physical Properties** and click on **Octanol/Water Partition Coefficient**. Expand **Manufacturing/Use Information** and click on **Major Uses**.

2. Has 2,6-dinitrotoluene been shown to be mutagenic in the Ames salmonella test? [HSDB]

MODIFY above search to **2,6-dinitrotoluene ames**, and click on **2,6-dinitrotoluene** record.
Note: You may also wish to check other files, such as GENE-TOX and CCRIS.

3. What is the oral LD50 of caffeine in male rabbits? Also, click on **DETAILS** to view the search strategy. [HSDB]

Search for **oral ld50 caffeine male rabbits** and click on **caffeine** record.
Note: On target hit displays first.

4. Has caffeine been studied as a tumor promoter? Does it cause mutations? [CCRIS, GENE-TOX]

From HSDB caffeine record (above), click on **Other Files**. Select CCRIS. Expand Studies data in Table of Contents and check the boxes for **Tumor Promotion Studies** and **Mutagenicity Studies**. Return to HSDB. Click on **Other Files** again and select GENE-TOX. **Select Mutagenicity Studies**.

5. Which of the toxicology data files contain information on ammonia? What is the Inhalation Reference Concentration (RfC) of ammonia? (Note: the RfC is a non-carcinogenic risk assessment parameter) Also, view the DOWNLOAD options available. [Multi-Data Base and IRIS]

Select the **Multi-Database** option on the TOXNET main page. Search for **ammonia**. Click on the IRIS ammonia record. Expand **Chronic Health Hazard Assessment for Noncarcinogenic Effects** in Table of Contents. Click on **Reference Concentration for Chronic Inhalation Exposure (RfC)**. Also that the ITER database additionally contains non-carcinogenic risk information from ATSDR



TOXNET Exercises (continued)

6. What are some chemicals used in leather tanning and what are their human health effects? [HSDB]

Use the **limits** option of HSDB. Search for **leather tanning** in HSDB. Expand **Manufacturing/Use Information** and check the box for **Major Uses**. Click on several retrieved chemical records to view their “best sections” and click on **Human Health Effects** for these records in the Table of Contents.

7. Does nitrobenzene have any effect on sperm? Find some recent general articles on nitrobenzene. [HSDB, TOXLINE]

Search for **nitrobenzene sperm** in HSDB. Click on nitrobenzene record and view **Best Sections**. Click on **Other Files** and click on **TOXLINE**.

8. How does the U.S. Environmental Protection Agency characterize the carcinogenicity of methylmercury? [IRIS]

Search for **methylmercury** in IRIS and select the methylmercury record on the Search Results page. Expand category **II. Carcinogenicity Assessment for Lifetime Exposure**. Click on **II.A. Evidence for Human Carcinogenicity**.

9. Find any information on the occurrence or effects of methyl parathion in soil. Search using the chemical’s CAS Registry Number – 298-00-0. [HSDB]

Search HSDB for **298-00-0 soil** in the query box and scan the **Best Sections** of the methyl parathion record.

10. How do the Dutch RIVM (National Institute for Public Health and the Environment) and the U.S. EPA compare in their non-cancer oral risk values for chloroform? [ITER]

Search for **chloroform**. View **Risk Data: Non-Cancer Oral Table**.

11. Use Boolean operators and phrase searching to look for information on lung cancer or bladder cancer in workers, in HSDB.

Enter – (“**lung cancer**” [htox] OR “**bladder cancer**” [htox]) AND worker

12. To what extent is the anticonvulsant carbamazepine found in the serum of breastfed infants whose mothers take the drug?

Search for **carbamazepine** and review Drug Levels/Infant Levels.



TOXNET Exercises (continued)

TOXICOLOGY LITERATURE FILES

1. Search TOXLINE for articles by C.N. Pope. Sort retrieval by primary author names. [TOXLINE]

Search for “pope cn” in query box. On “Search Results” page, click on “SORT” button and sort by author.

2. Search TOXLINE for phosphoric acid. Explore navigating through your retrieval, examining individual records, and going to linked records. [TOXLINE]

Search for **phosphoric acid** in query box. Click on **Details** button to view the search strategy. Navigate the retrieval pages. Click on records of interest and on hot-linked data – e.g. keywords/MeSH headings, author names, CAS registry numbers. Check for related records.

3. Find articles focused on the effects of diet on breast cancer. [TOXLINE]

Try a **Limits** search. Enter **diet breast cancer** in the query box. Limit to **Titles**.

4. Find journal references on the treatment of arthritis by the anti-inflammatory agent Celebrex. [TOXLINE]

Search for **arthritis celebrex** in the query box.

5. Use the EMIC subfile to determine whether peppermint been tested for mutagenicity. Check for English language articles. [TOXLINE]

Conduct a Limits search. Select EMIC as a TOXLINE Component and English as a language from the drop down menus. Enter **peppermint** in the query box.

6. Find information on the effects of alcohol on the fetus. [DART]

Select **Both** DART Special and DART CORE. Search for **alcohol fetus** in the query box.



TOXNET Exercises (continued)

7. Search the toxicology subset of PubMed to find articles on toxicological aspects of jellyfish. Search for articles published from 2000-2003 in English. [PubMed toxicology limits].

Go to PubMed at <http://pubmed.gov>. Click on **Limits**. Enter **jellyfish** in the search query box. Limit the search to the toxicology subfile, the publication dates to 2000-2003 and the language to English.

8. Find information on renal failure associated with amanita mushroom poisoning. Look for English language articles published from 1995 to 2004. [TOXLINE]

Conduct a Limits search. Enter **amanita renal failure** in the query box. Restrict publication years to 1995-2003. Select English from the dropdown menu.

9. Use the HISTORY feature to look for hospital or medical waste incineration in TOXLINE. [TOXLINE]

First search for **“hospital waste” incinerat***. (Using quotes looks for the terms together as a phrase. The asterisk is for truncation and searches for words such as incinerate, incineration, etc.) Then search for **“medical waste” incinerat***. Press the HISTORY button and combine your two searches according to the instructions, and using an “OR” operator.

TOXIC CHEMICAL RELEASES

1. How much ammonia was released to the air and water in Milwaukee in 1999?

In TRI99, search for **ammonia** in the “chemical name” query box and for **Milwaukee/WI** in the “facility location (city/state)” query box. Click on “Search.” Click the top, left button “Calculate Release.”

2. How much of the above releases came from Lesaffre Yeast Corporation and in what body of water did this facility discharge ammonia?

After above search, use the browser’s “back” button to return to the “TRI Search Results” screen. Click on the Lesaffre Yeast Corporation record. Click on “Environmental Release of Chemical” in the Table of Contents. Scroll down to “Water Discharge Estimates.”



TOXNET Exercises (continued)

3. What chemicals have been released to the air, in amounts greater than 100,000 pounds, over Old Hickory, Tennessee in 1995 and 1996? By what companies?

Search for **Old Hickory Tennessee** in the “facility location (city/state)” query box. Select **greater than 100,000 pounds** for “total air release.” Results page will display chemicals and companies.

4. Did Agilent Techs’ Newark, California facility transfer any 1,2,4-trichlorobenzene off-site for treatment in 1996? How much? Where to?

In TRI96, search for **1,2,4-trichlorobenzene** in the “chemical” query box, **agilent techs** in the “facility name” query box, and **newark california** in the “facility location (city/state)” query box. Click “Search.” Click on “Off-Site Waste Transfer” in the Table of Contents.

5. What chemicals have been reported released in amounts over 1,000,000 pounds via underground injection in Texas in 1999, and what is the total sum of these releases.

In TRI99, search for Texas as a state under Facility Location, and greater than 1,000,000 pounds as a range. Sorting the results will provide a clear display of the chemicals. Click on the Calculate Release button to view the sum total of the underground injection releases.

6. How many individual TRI98 reports have been filed on barium compounds? Display the U.S. geographical distribution of reported releases.

In TRI98, search **barium compounds** in the chemical query box. Note the number of records retrieved listed at the top of the Search Results page. Click on “Map it with TOXMAP” to view a map of releases.



TOXNET Exercises (continued)

HAZ-MAP

1. What are some high risk tasks associated with the job of carpet installation?

Click on **High Risk Jobs/Alphabetically**. Choose the letter “C” and click on **Carpet Installers**.

2. What are some hazards associated with the use of cobalt in the workplace?

Enter **Cobalt** in query box and click on “agent.” Click on **Cobalt**. Click on **Cobalt** again to view potential hazards. For Extra Credit – highlight a term or phrase (e.g. “cobalt chloride skin allergy” and search **TOXLINE**.

3. What are some hazards of leather tanning?

Perform a “text search” for **leather tanning** in the search query box. Click on first **leather and hide tanning and finishing** as an Industry and then go back and click on **tanning leather** as a Process.

HOUSEHOLD PRODUCTS DATABASE

1. What is in Windex and are there any health dangers associated with it?

Enter **Windex** in query box. Click on your choice of Windex cleaner. View ingredient and health effects information.

2. Compare the toxicities of various pesticides used to treat ants.

Click on the “Products” tab. Click on **Pesticides**, then on **Insecticides** as a Category and **Ant** as a type. View the data on the various products.

3. What stick deodorants include the antibacterial ingredient triclosan?

Click on Ingredients. Enter **triclosan** in query box. Click on triclosan. Scan list of products.



TOXNET Exercises (continued)

WORLD WIDE WEB

1. Explore EPA's voluminous Web site, particularly the **Databases and Software** section located by clicking on their home page's **Information Sources**. Locate IRIS, ECOTOX, the Toxics Release Inventory, and the Safe Drinking Water Information System. Use the Advanced Search box to find documents with **mercury** in the title. [www.epa.gov]
2. Locate a full-text article about the ban on ephedra in the March-April 2004 issue of the **FDA Consumer** magazine. [www.fda.gov]
3. What chemicals are on the list of "Known to be Human Carcinogens" in the National Toxicology Program's Year 2005 11th Report of Carcinogens? [ntp-server.niehs.nih.gov]
4. Find the Agency for Toxic Substances and Disease Registry's TOXFAQ profile on nickel. [www.atsdr.cdc.gov]
5. Check out the National Council for Science and the Environment's Web site and find recent Congressional Research Service (CRS) reports on **pesticides**. Also, look over the article on Acid Rain in NCSE's Encyclopedia of Earth. [www.ncseonline.org]
6. Which Florida universities offer graduate programs in toxicology? Check the Society of Toxicology's Resource Guide to Careers in Toxicology (under Public Outreach/Career Resources) [www.toxicology.org]
7. Explore the variety of data sources containing information on acrylonitrile, by searching ChemFinder. [www.chemfinder.com]
8. Where and on what dates will the Society of Environmental Toxicology and Chemistry's 5th World Congress be held? [www.setac.org]
9. What is New Jersey's percentile ranking among states in health risks from hazardous air pollutants? Use Scorecard (from Environmental Defense). Start by clicking on Air/Hazardous Air Pollutants. [www.scorecard.org]
10. Use the BIOLOG file (one of Syracuse Research Corporation's Environmental Fate Data Bases – EFDB) to find references on DDT in sewage. [www.syrres.com/esc/efdb.htm]
11. Find some expert peer-reviewed monographs on arsenic. [www.inchem.org]
12. What are some common side effects of the drug Vioxx? Consult MedlinePlus' Drugs and Supplements page (data from the USP). [medlineplus.gov]
13. Who makes Kill Zone Flea and Tick Killer 2000? What are its active ingredients? How have various governmental agencies rated the carcinogenic potential of these ingredients? [www.pesticideinfo.org]
14. How many poison control centers in Texas are certified by the American Association of Poison Control Centers (AAPCC)? What are their addresses? The AAPCC's Poison Center Lists includes a list of certified centers. Find the nation-wide toll-free poisoning emergency phone number. [www.aapcc.org]



Course Title _____
 Date _____
 City & State _____

1. On a scale of 1 to 4 (with 4 being the highest, best, or most, and 1 being the least or worst), rate the Presenter(s) individually or as a whole by circling the number that applies.

Presenter(s) Name:	Knowledgeable				Well prepared/ Organized				Effective presenter				Responsive to Questions			
	High		Low		High		Low		High		Low		High		Low	
1.	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
2.	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
3.	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
4. As a whole	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1

2. Please check the appropriate rating for each of the following aspects of this class.

	Agree	Somewhat Agree	Disagree
Instructional Materials			
Were used effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were relevant/useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hands-on sessions were useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Course Objectives			
Were met	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Course Content			
Was well organized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Length was appropriate for course content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I Acquired			
Knowledge & skills I can use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Facility was			
Conducive to learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. What part of this course was most helpful to you?

4. What part of this course was least helpful to you?

5. Overall, I would give this session a grade of: A B C D F

6. NLM database comments (if any)
